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Wisconsin Paper Mills Anticipate Good Year

Majority of Badger State Manufacturers Have Sufficient Orders to Maintain Production On Present Scale During First Few Months of 1931, With Some Increases — Rhinelander Paper Co. Looks Forward to Steady Output and Greater Economy of Operation, Due to Practically Complete Reconstruction of Plant

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 5, 1931.—Business interviews in several centers indicate that paper mills in Wisconsin look for a good year in 1931. Manufacturers feel that the bottom of the current depression was reached during the last three months of 1930 and that any change now will be much for the better. Production has been only slightly curtailed and some of the mills have been able to run at capacity right through the year. Unemployment in paper mill centers therefore has not been the problem it was in other sections. Enough orders are booked by the majority of mills for the first few months so operations will continue on the present scale, with perhaps some increases.

Operations at the Nekoosa-Edwards Paper Company, Nekoosa and Port Edwards, Wis., will compare favorably with those of 1929. The pay roll of approximately $1,600,000 was practically the same as the previous year. The only construction program during the last year was completion of a huge pipe line from Nepco Lake to the Nekoosa mill. No expansion of any consequence is planned in 1931.

At the Ahdawagam Paper Products Company, Wisconsin Rapids, Wis., business in 1930 was well above a four year average. The company has enjoyed business gains each year and is now operating its new light carton plant. Other factory additions are contemplated in the future.

The Rhinelander Paper Company, Rhinelander, Wis., looks forward to steady operation and hopes to maintain a full time schedule. Greater economy of operation will be enjoyed hereafter due to the almost complete reconstruction of the mill. Among the improvements in a building program extending over a long period of time are: Installation of a new paper machine; construction of a new and ultra-modern power house, a new bleaching plant, new finishing department, four new supercalenders and addition of other finishing machinery. The principal equipment of the new wood room consists of a larger barking drum, new slasher-saw and a complete new conveying system. In addition to the glassine wrapping papers, the company is also turning out a machine-glazed sulphite paper.

Lumber Options Withdrawn

Options given by the Dells Paper and Pulp Company, Eau Claire, Wis., to the proposed New Dells Lumber Company have been withdrawn, according to notice given by S. R. Davis, vice president of the paper company. The options covered three large timber tracts in Northern Wisconsin which were to be logged by the lumber company. All by-products of the saw mill operations were to be taken over by the paper company. Rapidly changing conditions in the paper and lumber business, and the lateness of the season to commence logging operations were given as the reasons. It had been expected that the lumber company could be properly financed with the help of the paper company, but the plans moved too slowly. The options expired December 4, but the Dells Pulp and Paper Company indicated its willingness to resume the negotiations in the spring if business conditions improve sufficiently.

Safety Schools Close Successfull Sessions

Safety schools at Wisconsin Rapids and Rhinelander, Wis., closed last week with banquets at which recognition was given those who had taken part. At Wisconsin Rapids, 313 were present and a large number were to receive buttons as a memento of their schooling. Many of these were employees of the Consolidated Water Power and Paper Company. The toastmaster was J. J. Plzak, safety engineer of the company. Elwood T. Bailey, of Los Angeles, Calif., gave the address of the evening. There were 174 at the Rhinelander banquet who were to receive plaques for their regular attendance at the school. The larger number were from the Rhinelander Paper Company. William Rainey Bennett, of Chicago, gave the principal address, complimenting Wisconsin on its safety work.

Consolidated Mills Safety Record

More than 300 days have passed since the Interlake mill of the Consolidated Water Power and Paper Company, located at Appleton, Wis., had a lost time accident. The record now exceeds any ever held by any of the Consolidated mills and the employees hope to complete an entire year on this basis. The Stevens Point, Wis., mill holds second place, with more than 100 days to its credit. The month of November was perfect for the Wisconsin Rapids mill, where 530 men are at work on the average. The mill at Biron, Wis., had two lost time accidents. As a whole the Consolidated's safety record has improved 50 per cent.

Papermakers Chemical Corp. Sinks Artesian Well

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., January 5, 1931—The local plant of the Papermakers Chemical Corporation has just successfully sunk a 200 foot artesian well giving 50 gallons a minute of pure water for use in its manufacture of sizing and other products.

Canadian Forest Products Situation Analyzed

Advent of Russian Pulpwood Has Had Depressing Effect On Export Trade—Dominion Advantageously Placed To Meet Increased World Demand For Soft Wood Lumber and Paper —From Pacific and Atlantic Every Important Center Is Within Reach

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., January 5, 1931.—The Hon. Thomas G. Murphy, Minister of the Interior, in a New Year review of the forest situation in Canada, says that since the United States and Great Britain, Canada's two principal markets for forest products, are open to all countries, the advent of Russian lumber and pulpwood into those markets, though as yet in comparatively small quantities, has had a decidedly depressing effect on our export trade.

While our domestic consumption provides a market for about 70 per cent of the total amount of wood cut, we have had during recent years a surplus, equivalent to about 1,200 million cubic feet, for export. The total value of the exports of forest products, exclusive of printed matter, during the years 1925-1929 has averaged $283,356,156 and as the imports averaged only $36,467,506, there has therefore been an average favorable balance of trade of $246,888,650, of which 83.6 per cent occurred in our trade with the United States and 6.7 per cent with Great Britain. The maintenance of a stable market for this exportable surplus in forest products as an offset to imports of other commodities is therefore of vital importance to Canada.

Aside from the fact that in the manufacture of paper, lumber and other products of the forest approximately $500,000,000 is added to the wealth of Canada annually, and remunerative employment is afforded to 200,000 people, these products are a most important factor to our transportation systems. It is not generally appreciated that more railway cars are required to handle forest products than grain and grain products and that during the years 1927 to 1929, 17.6 per cent of the cars loaded in Canada carried forest products, while only 15.5 per cent were loaded with grain and grain products. The consequences of depression in our forest industries are indicated by the fact that during the past year there was a decrease below 1929 of approximately 100,000 cars used for forest products as against 45,000 in the number of cars loaded with grain and grain products.

During the last fifty years the world consumption of paper has increased from 1,000,000 tons to 23,000,000 tons and with the increase in education and extended use of paper for purposes other than printing, there is every reason to expect an accelerated increase in the demand for paper as soon as the present temporary trade depression is passed.

Sixty per cent of the paper manufactured in the world is at present consumed in the United States where Canada possesses a considerable advantage over other countries on account of her geographical location and transportation facilities. It may be pointed out also that European countries have developed their productive capacity practically to the limit of the growth of their forests and cannot be expected to participate to any great extent in filling increased demands. In spite of her vast forest area, the United States has become an importer rather than an exporter of wood. With regard to Russia, authorities agree that, though under pressure of immediate fiscal and political needs, that country may be able to increase her exports of wood, nevertheless her accessible forest resources will not permit exploitation at the present rate for more than a few years.

Canada of all countries is the most advantageously situated to meet the increased world demand for softwood lumber and paper to which every indication points. From our Pacific and Atlantic ports every important market can be reached and the central portion of the Dominion is close to and connected by rail with the great centers of consumption in the United States.

Practically one-third of the Dominion is essentially forest land; about 555,000,000 acres is classed as accessible and productive, 200,000,000 acres carrying timber of merchantable size and 355,000,000 acres young growth of various ages.

The Forest Service of the Department of the Interior is at present engaged in a comprehensive inventory of the forest resources in co-operation with the various provincial authorities and it is also conducting in each province an extensive survey of the reproduction and rate of growth of the forests. When these two projects are completed, reliable data will be available upon which both governments and industries can formulate forest policies devised to ensure continuous production through regulation of depletion of the forest from all causes to conform with annual growth. The results of the surveys concluded to date, show that properly protected and managed, the productive and accessible forest land in Canada is capable of growing much more timber than is now being used. If this preliminary finding is substantiated by subsequent investigations, we may rest assured that the permanence of the industries using wood as a raw material will be contingent only on proper protection and management of our great forest heritage.

To Produce Sulphur at Home

Some months ago reference was made in this correspondence of the PAPER TRADE JOURNAL to a new discovery by Horace Freeman, of Shawinigan Falls, Que., of a process for burning Canadian pyrite ore whereby sulphur for use in the paper-making industry might be manufactured in Canada. The Royal Bank of Canada, in its currrent news letter makes reference to this process.

The bank's letter says in part:

"The idea of using pyrite is not new. In fact, pyrite was the common source of sulphur before the discovery of the great brimstone deposits in the southwestern part of the United States. Even in 1928 the amount of pyrite produced was the equivalent of 3,300,000 metric tons of sulphur, while brimstone production amounted to only 2,560,000 metric tons. Since it takes 2.2 tons of pyrite to be equivalent to 1 ton of sulphur, the total world production of pyrite in 1928 was 7,300,000 metric tons. Under the methods in common use before the Freeman burner was developed, the cost was so high and the equipment so complicated that there had been no idea of substituting Canadian pyrite for foreign brimstone.

"Pyrite is a mineral made up largely of iron and sulphur. In the past the sulphur content of this ore has discouraged those who wished to secure iron from this source.

"Under the new process the pyrite is ground into a fine dust and this dust is blown into a preheated oven where it burns with sufficient heat to maintain the high temperature without the use of other fuels. The gases formed in this oven are cooled with water and this cooling process generates sufficient steam to pay for the whole cost of operation of the plant.

"In the first experiments which were made with this burner at a news print mill, it was necessary to bring the pyrite ore from British Columbia via the Panama Canal. This long haul greatly increased the cost of the ore. This news print mill, however, which was on the St. Lawrence River where sulphur could be brought in at a low freight rate, was able to show savings of six dollars per ton of sulphur.

"At the present time there is no Canadian iron ore being used for the production of iron and steel. The pyrites which would be

used in this new process are found in many parts of Canada. If this new process is generally adopted, the amount of iron oxide which would be produced would amount to 150,000 tons. This is equivalent of 190,000 tons of ordinary iron ore and would result in the annual production of nearly 100,000 tons of iron from Canadian ores. While it is by no means certain that all the news print mills of Canada will make use of this new machinery, the success of the experimental installation bids fair to give a decided impetus to its general adoption."

Production of Waterproof Papers

The Scutan Company of Canada, Ltd., with headquarters in Montreal, has within the last few months begun the manufacture of waterproof papers for distribution to trade in the Dominion of Canada. It is reported that Scutan waterproof papers are in their production entirely different from other types of waterproof papers, they being made from a base of No. 1 Canadian kraft on whose exterior surface is infused the waterproof compound, prepared by Scutan, so that the finished sheet is prevented from holding or absorbing water or moisture.

Scutan waterproof papers had their inception some six years ago through the formation of the Scutan Company, Ltd., of New York, when an entirely new process of waterproofing paper was developed and patented. Inquiries for this new material having developed from Canadian consumers indicated a sizeable outlet for Scutan products here.

This demand resulted in a decision to install a separate and distinct Canadian plant in Montreal, where the entire line of Scutan products could be produced from Canadian basic materials and of Canadian manufacture. A location was selected and plant equipment was furnished by the St. Lawrence Welding and the Dominion Engineering companies. Production began in August.

At present Scutan waterproof papers are made in weights of basic kraft from 30 pounds to 120 pounds ream weight and in various widths up to 86 inches. The finished product is prepared in rolls containing a minimum of 1,000 square feet or more, to suit individual requirements.

Products of the Scutan Company of Canada, Ltd., are distributed to the trade within the Dominion by the Creo-Dipt Company of Canada, with general offices in Toronto, Ontario, and branch offices and representatives throughout Canada. The paper is used for case linings of packages, for refrigerator construction and various other needs.

Price Bros.' Research Unit

Price Bros. & Co., Ltd., of Quebec, have established a research department to deal with problems connected with the company's various lines of products. It is understood that for the time being the research department will be engaged in work in connection with the new board mill of the Donacona Paper Company, a Price subsidiary. It will be recalled that in the early part of 1929 Donnacona undertook the construction of an insulating board mill, having a daily capacity of 150,000 square feet. The plant was brought into operation early in 1930. Later on it is likely that the research laboratories will turn its attention to the pulp and paper end of the business.

Canada Paper Using Industries

The Forest Products Branch of the Dominion Bureau of Statistics has just issued a report on the paper-using industries of Canada for 1928. This shows that the paper-using industries represent the investment of over $159 million and give employment to over forty-two thousand people with a total payroll of over $58 million. The principal raw material used is newsprint paper of which over 174,000 tons were purchased at a cost of over $12 million. Other important items are 42,000 tons of book and writing paper and 134,000 of paper board. The total cost of all raw materials was almost $58 million and the gross value of production was over $173 million. The principal separate items of income were advertising $43 million, job printing $38 million, subscriptions and sales of publications $15 million and lithographing $8 million. The principal products manufactured were paper boxes $16 million, envelopes $3 million and roofing paper over two and a half million dollars.

Among the special features of the report are two tables in which the materials and products of the entire group are brought together and arranged in alphabetical order for easy reference. The report as a whole shows the importance of the paper-using industries in Canada in their relation to the pulp and paper industry and as a source of supply of printed matter, stationery, containers and other paper commodities so necessary in modern business and industry.

Paper Mills Win Accident Prevention Prizes

[FROM OUR REGULAR CORRESPONDENT]

UTICA, N. Y., January 3, 1931.—A number of paper mills in this section have been awarded prizes for excellent records in connection with the annual accident prevention campaign under the direction of Associated Industries of New York State. The contest just ended was the largest in point of enrollments ever held and a reduction of more than one accident per hundred workers over the low mark in the 1929 drive was established. Nearly 1,500 contestants were enrolled employing 308,000 workers and these were divided into eighty-two separate groups, each firm being placed in accordance with the size and nature of their risk. In each of these groups a mounted trophy was awarded to the firm having the best safety record for the entire period, which started early in the fall. In those groups where more than one firm completed the campaign with perfect scores the trophy was awarded for the greatest exposure from the standpoint of hours, all other one hundred per cent firms receiving engraved certificates attesting to their record. In addition a number of honorable mention certificates for exceptional records have been granted.

With 308,000 workers enrolled, the campaign recorded a total of 164,000,000 hours worked in the three months period, with a loss of time through accidents slightly over 400,000 hours caused by 2,300 lost-time accidents. In the previous campaign of 1929 there were 3,426 accidents among 293,151 workers causing lost time amounting to 433,000 hours.

Among the winning contestants in this section were the Utica Box Company, Dunlop Tire and Rubber Company, Brunner Manufacturing Company, Divine Brothers Company, Sauquoit Paper Company, Library Bureau of Remington Rand, Inc., and several others. All awards won locally will be presented by an official of Associated Industries at a meeting to be held soon under the direction of the Chamber of Commerce in this city. A similar meeting held at the conclusion of the last campaign met with great response.

Navigation to Close on Champlain Division

GLENS FALLS, N. Y., January 3, 1931.—Plans are under way for the suspension of activities at the local barge canal terminal as the navigation season on the Champlain Division is about to be concluded because of cold weather. Among the last shipments of the season to be received here was a consignment of 800 tons of scrap paper for the International Paper Company and two boat loads of foreign pulpwood for the Hudson Falls plant of the Union Bag and Paper Company. The task of unloading these vessels has been under way for some time and a large force of stevedores are being employed. Water is now being let out of the feeder canal in this city and it is planned to lower the water in the barge canal to its winter level as soon as the vessels at anchor are placed.

Canal officials claim the season has been a busy one and a large increase in tonnage handled over a year ago has been recorded. Shipments of pulpwood to the Union Bag and Paper Company fell off following the sale of their mill on the Pacific Coast which during 1929 supplied most of the product used in the Hudson Falls plant. Despite this, however, the season has been a good one and plans call for activities on a larger scale during the coming Spring.

Pennsylvania Mills Await Inventory Completion

Keystone State Paper Manufacturers Defer Advancing Operations Until More Definite Trend Is Established For New Year—Distributors' Warehouses Practically Cleaned Out of Hold-Over Stocks, Particularly In Wrapping Paper Division

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., January 5, 1931.—There has been a wide cleaning out of stock rooms with the holiday season, particularly in the wrapping paper division, where over-supply was most noticeable, and where Christmas buying effectively disposed of long held goods in certain standard grades, such as kraft and other wrappings, bags and containers, as well as corrugated products. Inventory showed little of these on hand among the larger paper houses, so that the way is clear for fresh orders and in turn a broader activity among manufacturers. Fine paper merchants are fairly well supplied, except among those dealers catering to large publishers and printers, where specified contracts are made to cover volume orders over a period of time. Such buyers of fine papers report a good year, with business totaling an increase over 1929 despite the depression.

There has been improvement in the bag situation, which is most gratifying to the trade. Inventories show little stock on hand and readiness to meet the more stabilized markets that loom for the current season at advances of from 5 to 10 per cent in prices made in December. Steadiness in the kraft market at this time is another hopeful indication of stabilization in the early months of the new year and the trade is looking ahead to still further improvement with the advancing year. Prices hold at the Fall levels. Local manufacturers are not advancing operations on any appreciable scale, preferring to await inventory completion and a more definite trend for the new year. There is little overstocking among manufacturers here as the holidays cleared out warehouses and, as cautiousness prevails to prevent the mistakes of the past year in the law of supply and demand, mills are more prone to wait for improvement before expanding.

Paper Trade Reports On Kraft Sales

Statistical report on the kraft sales of the Quaker City merchants occupied the attention of the Philadelphia Paper Trade Association at the meeting of the Wrapping Paper Division held last Wednesday at the Down Town Club when sales from December 1 to 27 were accounted for the purpose of securing accurate data on conditions with a view to applying remedial measures for stabilization in the new year. These statistics will be recorded monthly by a group of merchants who have agreed to submit reports to aid in the work of improving the wrapping paper market.

The statistics submitted at the meeting covered approximately 2500 orders reported by ten paper houses. They showed that mill shipments maintained average prices shown on test survey made in November, there being a slight variation of .01 per cent on 100 lbs. Warehouse orders accounted for 75 per cent of tonnage and 97 per cent of number of orders. Of warehouse orders, the effect of holiday buying for filling number of requirements was shown in an increase of 12 per cent in percentage of orders in smaller quantity brackets. Eighty per cent of the warehouse orders were for less than 500 lbs. of paper averages. Selling prices declined in practically all divisions of warehouse business under prices shown by test survey made in November. The next meeting will be held January 28 at which the questionnaire will be distributed for comparison of operating ratios for 1930 business.

Paper Merchants Join Typothetae Party

Paper merchants linked with the fine paper division joined in the Yule time celebration of the Philadelphia Typothetae held last Tuesday at the Poor Richard Club. Those who celebrated at the banquet board and enjoyed the entertainment were Norbert A. Considine, Paper House of Pennsylvania; Leon Beck and Andrew Simon, Charles Beck Paper Company; D. F. Coots and Joseph Schaller, Whiting Paper Company; Clyde Cobaugh and Howard Satterthwaite, Satterthwaite Cobaugh Company, and M. K. Christine, and L. A. Gipp, Raymond & McNutt. Paper houses contributing prizes awarded at the banquet were Whiting Paper Company and Raymond & MacNutt.

New Lines Offered By Perkins Novelty Co.

Having returned from the annual December sales conferences held at the Lodge of President B. F. Perkins, of the American Tissue Mills, Holyoke, Mass., the Philadelphia territory sales manager, William T. Pease, announced that an entirely new line of paper will be introduced and produced by the recently created subsidiary of the American Tissue Mills, the Perkins Novelty Company, of Holyoke. The new lines are being shown by Sales Manager Pease at his offices, 3754 North 18th street, and include luncheon supplies of high grade novelties, dinner favors and requisites in paper, picnic and party supplies, crepe napkins in colors and decorated or plain, crepe shelf papers and numerous other lines similar to those produced by the Dennison Manufacturing Company.

There were one hundred sales representatives present at the conferences and holiday celebration of the American Tissue Mills held at the Lodge outside Holyoke when the new lines were announced. Production began three months ago so as to have the line ready for the new year.

Louis DeJonge to Add New Box Tops

With the New Year there will be distributed here the samplers of new 1931 papers used for fancy box tops made by the Louis DeJonge Company, Staten Island, New York, and represented here by William Bollenbach, with offices in the Insurance Company of North America Building. They include new embossed and prints for fancy tops.

Fancy Papers, Inc., Latest Products

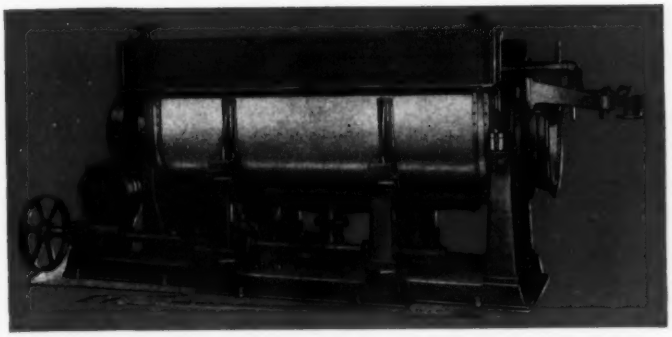
With late December there was introduced to the trade an entirely new assortment of combination papers of the Fanpaco brand, specially made by Fancy Papers, Inc., manufacturers of specialties in fine papers, 5356 Chew street. They include combination assortments of cardboards, envelope papers, tissue envelope linings, and paper stocks adapted for announcements, greeting card manufacture, folders, cut outs and allied uses. They are of exceptional quality and attractiveness in designs. Sample packets are ready for the trade.

Franklin Paper Co. Distributes New Line

These entirely new products of unique characteristics are to be distributed in the Philadelphia trade by the Franklin Paper Co., 810 Sansom street, which has acquired sole distributive rights for the Fanpaco Lines in the Quaker City and territory. There are shown at the Franklin headquarters the Batiste, Rivello, Fairfax, and De Luxe grades of the Fanpaco. O. M. Steinman has been assigned as sales representative for these papers by the Franklin company

Dill & Collins Co. To Exhibit

Among the paper exhibits to be made at the yearly Poor Richard Club displays to be held during the three day Annual Advertising Exposition, January 15, 16 and 17, at the Bellevue Stratford Hotel, a special exhibition of the papers of the Dill & Collins Company adapted for use in advertising and direct mail purposes.



Quality of stock...
production...
cost per ton
...no matter
how you figure
it, the screens
for your mill are

BIRD SCREENS

BIRD MACHINE COMPANY
SOUTH WALPOLE, MASSACHUSETTS

BIRD MACHINERY

4624

Chicago Paper Market Exhibits Improved Trend

Long Road to Recovery Indicated By Rapid Increase In Various New Uses of Paper—Demand For Fine Papers Should Expand Materially, As Depleted Stocks Must Be Replenished—Kraft Paper Situation Better, With Prices Steadier Than of Late

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., January 5, 1931.—Too early to show actual results, the first few days of January seem to indicate that the paper market in general is on the long road to some sort of a recovery. On the right side of the ledger, say representatives here, is the rapid increase in uses of paper, and various new uses of paper, which should tend to build up a new market. Another black ink factor is said to be the fact that a general retrenchment has been accompanied by some genuine investigating in the costs of making paper and in cutting down a tremendous amount of over production in practically every line. Sales forces are also said to have been generally overhauled. On the darker side is the low price situation, a great deal of over production yet to be taken care of and a continued tendency to price cutting which may crop out any time, especially in certain markets.

One of the biggest needs of the entire industry, say close observers, is the adoption of a big, national campaign to stimulate the use of paper in a thousand and one old and new ways. There are plenty of merchants here who feel that the cooperative advertising of paper in general would be a big help toward opening new channels of sales. In the specific markets, kraft seems to have found a level of prices and there is a probability that this market will benefit by a more stabilized condition in 1931. Fine papers, while spotty now, are expected to broaden out more as depleted stocks must be filled. Board may find better methods added to new uses to cut down over-production which is holding it back. Books and covers should have a fairly dependable market. Changes in prices in the waste paper market should be reported shortly.

Chicago Paper Association's Activities

The Chicago Paper Association is planning an unusually interesting meeting on January 13 when committee appointments for the ensuing year will probably be made and the discussion on bag paper prices continued. In an open letter under date of December 29, D. F. Peck, president of the association, outlined the present status of affairs on the bag market. Because of the fact that the present bag list, which was adopted on August 15, is deemed out of line as far as the association is concerned, the organization goes so far as to recommend several manufacturers who are willing to abide by the old list—manufacturers who, says the letter, were evidently not satisfied by the old list and, evidently, not their jobbing trade either. Regarding the Bag Institute letter written to the secretary of the association on December 2, Mr. Peck writes "they wrote that the special committee appointed to investigate the advisability of changing the August 15 list had reported that a very large majority of jobbers 'covering the entire United States' did not wish any change. I must again take issue with this statement. I have in my possession letters from jobbers located in ten states (Chicago has repeatedly gone on record) and not one of these jobbers in all of these States have ever been sent any kind of a questionnaire on the subject—not interviewed as to their opinion. All but one adds that they do not want the August 15 list. One state wants no list at all. Many add that they are buying on the old list and some report forced to buy on the new list. All will cooperate in securing a proper set-up list."

Mr. Peck urges that, with this general information, a new deal should be set-up. That "votes should be based on number of cars per year that each jobber may purchase and not on the number of jobbers voting and, until the matter is settled or until a satisfactory list is issued, stand pat and buy on the old list as some one will sell you. Have your various associations get behind this proposition.

"The new August 15 list" concludes Mr. Peck, "just looks like we jobbers are being prepared for the possibility of factories soliciting the large consumer business direct. One more step and out we go. Some factories are already taking a lot of it and for this reason we should fight every form of encroachment upon our rights."

The Association's work on the bag prices has been a feature of association activity in this section. Indicative of the possibilities of coordinated effort it is an interesting test of cooperative action.

News of the Trade

How refreshingly seasonal and up-to-the-minute is the little volume of "Rags" published by the Rag Content Paper Manufacturers Association, and finding it way for the 27th time into the Chicago paper market. On the inside front cover is a wish for a Happy New Year. On the inside back is a resolution: "Resolved: That during and after 1931 I shall have some stationery both for my business and for myself which will be creditable. I shall have a well designed letter head and shall use only finest paper. No longer shall I disregard the appearance of my correspondence any more than I would disregard my personal appearance. This I know will return to me results in many ways far greater than any cost." Which is a nice and pleasant way of putting out a most powerful sales argument for rag content paper.

Jobbers are wondering if it was a live wire paper merchant who designed the now famous "crying towels." One came in today from a materials dealer—a paper towel on which was printed "The next bozo who comes weeping to you crying 'bad business' hand him this crying towel—direct him to a quiet corner and tell him to go to it". New markets!

The important meeting of the Salesmen's Association of the Paper Industry Chicago Division, held on December 22 for the discussion of differentials on carloads and less carloads was so entirely taken up by a complete covering of the subject of trimmed and untrimmed papers that the car loads and less car loads program has been held over until Monday, January 5, according to Harold Knott, president. On that date the differentials on car loads and less carloads will provide the basis for discussion. At the same time the association will be casting about for talent to fill executive positions at the election to be held in New York in February.

The January 2 mill price list of the West Virginia Pulp and Paper Company has been mailed out from their Chicago offices at 35 East Wacker Drive. The fifteen pages carry quotations and descriptions on twenty one grades of paper. An announcement is also carried covering reduced prices on the following Westvaco lines: Clear Spring Super, Clear Spring English Finish, Clear Spring Text, Westvaco Inspiration Super, Westvaco Inspiration M. F. Westvaco Inspiration Eggshell, Westvaco Bond, Origa Writing Westvaco Mimeograph, Westvaco Index Bristol and Westvaco Post Card. The January 2 mill price list contains these reductions.

Ben Mont Fancy Papers Install Ross System

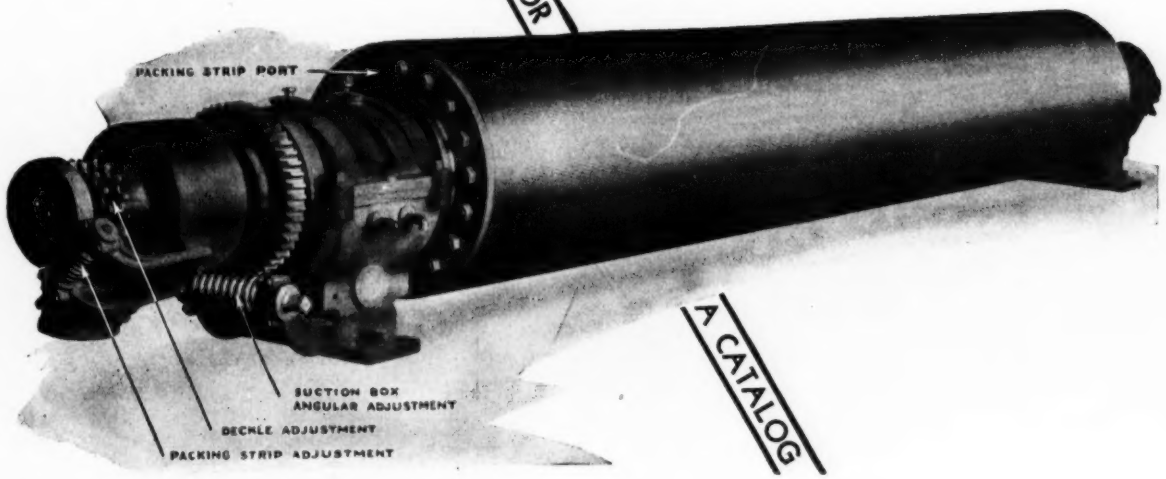
BENNINGTON, Vt., January 5, 1931—A Ross "Reflex" Drying System for surface printed papers to be operated in conjunction with festooning machine has been installed by the Mont Fancy Papers, Inc., Bennington, Vt.

WRITE YOUR NAME AND ADDRESS ON THE MARGIN OF THIS PAGE AND MAIL IT TO US FOR A CATALOG

As an experiment, one mill ran a Downingtown Suction Press Roll for a considerable time with a loading of 300 pounds per inch of face of top roll in a reversed press. ✓ The newsprint was delivered to the dryers 40% bone dry and then dried on twenty-eight 48" dryers at a speed of 630 F. P. M. with a steam consumption of 3500 pounds per ton of paper. ✓ As far as we know, this is the highest nip pressure that has ever been carried by a suction press roll. ✓ New catalog sent on request.

Downingtown Manufacturing Co.
Downingtown, Pa., U. S. A.

DOWNINGTON KILBERRY PATENT SUCTION ROLL



Ontario Paper Manufacturers Are Optimistic

Expect Demand For Most Standard Grades of Paper Will Start Off Well For Current Year, Following Depletion of Stocks Through Holiday Requirements — Fine Paper Market Continues to Exhibit Strong Undertone and Outlook Is Bright

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, January 5, 1931.—With many of the mills closed down to enable repairs and renovations to take place, with travelers in off the road and with many firms taking inventory, paper turnover during the Christmas-New Year period has been very light. This condition will more or less prevail during the early days of January, but notwithstanding this same business is being placed direct with the wholesalers and jobbers by wire, telephone and letters. In fact some of the wholesalers say that there was comparatively little let-up over the holiday period, a small flood of light orders having come in between Christmas and New Year. Despite the prevailing financial depression and a lot of unemployment the big department stores in the city and other stores as well did an excellent business this Christmas, one of the largest department organizations reporting that both the Christmas and the year's business were the best they had ever done. This was reflected to some extent in the paper trade, particularly in the coarse paper section, where sales of wrapping and bags put on a bit of a spurt for the Christmas rush. It did not, however, make up entirely for the rather quiet conditions that have prevailed in the coarse paper market for some months. But good retail business in commodity lines generally meant sales of a number of lines of paper and helped materially to reduce stocks of the paper wholesaler.

It is believed that following closely on the opening of the New Year, demand for most paper lines will start off well. Just now such lines as grease proof, waxing and glassine are in light demand but there are signs that they will be in ready sale after inventory season is over. There is still a disposition to buy the cheaper grades of fine paper and this may continue a while longer. There has been little cessation in the call for light weight papers, such as tissues, toilets, specialty tissue and crepe lines. Both mills and distributors report demand well sustained over the Christmas holidays. Paper converting firms report little improvement in conditions and their sales are still light, including envelopes. The fine paper market continues quite strong, as a whole, and mills and wholesalers are looking for a good year in 1931. The board market is in none to strong a position just now and several of the leading mills are closed down for a period of several weeks. The paper box industry is making only light requisitions for stock for the reason that their own manufacturing activities are on a light scale.

Geo. W. Pauline's Promotion

Geo. W. Pauline, managing director of Alliance Paper Mills, Ltd., with mills at Merritton, Ont., and head office in Toronto, is receiving the congratulations of his many friends in the paper trade on his promotion to be a vice-president of the Howard Smith Paper Mills, Ltd., which concern took over Alliance some time ago. The appointment was made at a meeting of directors of the Howard Smith Paper Mills in Montreal a few days ago when C. Howard Smith relinquished the presidency of the organization, due to ill health, and was elected chairman of the board of directors. At the same meeting Harold Crabtree, who has been associated with the company for the past fourteen years, was elected president, and E. H. Smith vice-president and managing director. In addition to Mr. Pauline, E. K. Robinson was also elected one of the vice-presidents.

Notes and Jottings of The Trade

After having been in the Toronto office of the Howard Smith Paper Mills, Ltd., for the past year, Alexander Smith has been transferred to the Montreal office of the concern. Mr. Smith made many friends both in and out of the paper trade in the city and his removal is regretted by them.

A federal charter has been granted Strong's Forest Products, Ltd., with headquarters at Montreal, authorizing them to take over the business of the Forest Products Company, of Hamilton, Ont., and to carry on a general lumber and pulpwood business. The authorized capital is $50,000.

According to word from the Pacific Coast, news print from British Columbia is now being shipped at regular intervals by the Powell River Company to Lima, capital of the Peruvian Republic. This news print is being absorbed in the presses of *El Comercio,* which is the leading daily of Peru. *El Comercio,* printed in Spanish, has a circulation of 42,000 copies daily. The securing of the contract for supplying the new sprint for this publication is considered an important development in the history of the Powell River Company. The news print is shipped direct from Powell River to the Port of Callao, chief seaport of Peru. There it is unloaded and shipped by railroad to Lima.

Bartram Paper Products Company, Ltd., 1280 Homer street, Vancouver, B. C., has just been incorporated at Victoria, B. C. The firm has been engaged in the production of paper products in Vancouver for the past number of years, although it has only just been incorporated. Bartram Properties. Ltd., another company directly associated with the paper trade, has been incorporated with a capital stock of $100,000. They will own and develop property.

Formerly of the Canadian International Paper Company, at Hawkesbury, Ont., F. D. Taylor, S. E. I. C., has joined the staff of the Brompton Pulp and Paper Company at East Angus, Que. Mr. Taylor graduated from McGill University in 1928.

The many friends in the paper trade in Ontario of the Hon. William Finlayson, Minister of Lands and Forests for Ontario, will be pleased to learn that he is fast recovering from his recent serious illness, although not yet back at his post in the Parliament Buildings.

S. F. Duncan, president of Provincial Paper, Ltd., has returned to Toronto after a visit of inspection to the Port Arthur mill of the company.

Thirteen members of the St. Johns Ambulance Association first aid team, belonging to E. Pullan, Ltd., dealers in rag and paper stock, Toronto, recently underwent an examination for efficiency by officials of the organization.

Another Swedish Pulp Mill Merger

[FROM OUR REGULAR CORRESPONDENT]

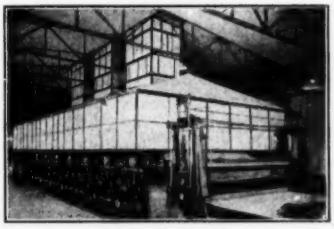
WASHINGTON, D. C., January 7, 1931—The latest consolidation of Swedish pulp mills includes twelve separate companies, operating combined sawmills and pulp mills in the northern part of Sweden according to a report to the Department of Commerce from Commercial Attache M. H. Lund, at Oslo.

This development is of particular interest because of Sweden's importance as a pulp exporting country. The new combination differs from the Kreuger merger in that it does not affect the control of the individual companies. Each will be an independent unit as heretofore, but all buying and selling is to be centralized.

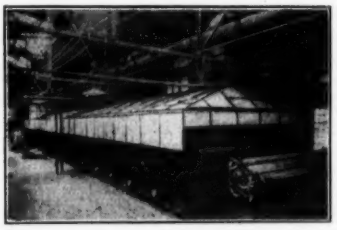
From the point of view of the pulp buyer, the control of selling policies is most important of course, particularly now that almost 50 per cent of the entire chemical pulp production of Sweden will be controlled by the two organizations.

What has happened to make hoods so popular?

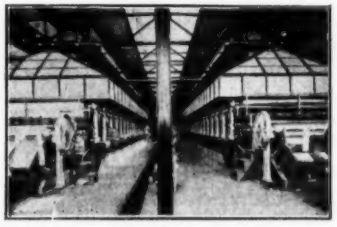
Albemarle Chesapeake Co. Inc.



Moyer & Pratt



Schmidt & Ault Paper Co.



Puget Sound Pulp & Timber Co.

The noticeable trend toward hooding machines is to a large extent the result of economies and advantages now obtainable through the exclusive features of

ROSS PAPER MACHINE HOODS

Transite-Asbestos lumber and Structural Steel Construction.

Entire hood free from danger of fire and damage from moisture and acid.

Panels and Curtains built complete—shipped ready for assembling.

Low erection and upkeep cost.

No interference with the normal operation of machine.

All panels designed to permit quick removal if necessary.

Opportunity to reassemble panels—one or more—as desired.

Hooked or hinged curtains for quick access to dryers and rolls.

With all the advantages and none of the disadvantages of hoods previously available, the Ross Removable Panel Hood presents an entirely new and greater measure of economy, efficiency and durability. Its exclusive construction features permits complete erection over a week-end shutdown. Available either insulated or uninsulated to suit climatic conditions. The steady and rapid increase in the number of installations testifies to the recognition of its superior advantages.

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Obituary

Harold Helmer

DETROIT, Mich., January 2, 1931.—Harold Helmer, president and general manager of Beecher, Peck & Lewis, wholesale paper merchants, died at his home, 738 Longfellow avenue, on Thursday, December 25, following a sudden heart attack. He was 52 years old and had been enjoying the best of health.

Mr. Helmer was born in Lockport, N. Y., June 8, 1878, and was married to Miss Elsie Goldschmidt in that city in 1905. As a boy he served as page for State Senator Timothy Elsworth in the New York legislature at Albany. Entering the paper field, he was first associated with the Niagara Paper Mills at Niagara Falls and the Chatfield & Woods Company, of Pittsburgh.

On leaving Pittsburgh, Mr. Helmer brought his family to Detroit, where he joined Beecher, Peck & Lewis, becoming secretary of the organization in 1912 and general manager in 1913. In January, 1927, he was elected president of the firm, following the resignation of A. F. Peck, who became chairman of the board of directors.

Mr. Helmer possessed a wide circle of friends in Detroit and the east. He was a member of the Detroit Club, Detroit Athletic Club, Rotary Club and Oconomowoc Country Club. He had a summer home, "Remleh," on Pine Lake, Hartland, Wis.

He leaves a widow, three daughters, Mrs. Alex David Parnie and Virginia and Carolyn Helmer, of Detroit, and a brother, Schuyer, of Flint.

William J. Arkell

[FROM OUR REGULAR CORRESPONDENT]

CANAJOHARIE, N. Y., January 3, 1931.—Word was received here this week of the death at Los Angeles, Cal., of William J. Arkell, formerly identified with the paper bag firm of Arkell & Smiths, of this village. His father, James Arkell, founded the concern which today is rated as one of the largest of its kind in the country. The deceased had lived a retired life in California for several years in an effort to recover his health and for some time his condition had been critical. He was associated with his father in the business of Arkell & Smiths in his early youth, until the factory was partly destroyed by fire a number of years ago.

For a number of years he was a joint owner of a number of prominent publications in New York City, including Judge's weekly. He was also a stockholder in the Mount McGregor Railroad near Saratoga and held extensive mining interests in Montana and Nevada. While residing in New York he maintained a large racing stable and was identified with numerous sport enterprises. The widow and a son are the principal survivors.

Francis M. Hugo

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., January 3, 1931.—Francis M. Hugo, formerly prominent in paper manufacturing circles in this section, died during the past week following a brief illness. The story of his life reads like fiction, as he rose from the lowest rung in politics to the governorship of the state. He was born in Canada, where he received his education in the public schools at Kingston in the Province of Ontario. For a number of years he was associated with Charles Remington in conducting the Remington Paper and Power Company of Harrisville, which operated several branches in Northern New York, serving in the capacity of attorney and general manager.

He served a number of terms as mayor of this city prior to retiring in 1914 in order to become a candidate for Secretary of State. After serving in that capacity for several terms he became a candidate for the office of Governor. In 1920 he was supported for the post by prominent political factions but failed to win the nomination and a short time later he retired from public life.

Rudolph Skinner Elliott

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., January 2, 1931.—Rudolph Skinner Elliott, veteran paper merchant and one of the older members of the distributive industry, long linked with the local paper field, passed away last Sunday at his home in Palo Alto, Cal., where he had been living for the past decade. He was a former associate of the A. G. Elliott Paper Company, founded by his father more than seventy years ago and long a prominent paper concern of this section. He joined his father's business shortly after graduating from the Wharton School of Finance of the University of Pennsylvania in 1893. This firm was later merged with other paper houses and the remaining representative of the founder went to California for his health after retiring from the industry. Surviving are his widow, two daughters and a son, besides two brothers and a sister living in Philadelphia and suburbs.

Salesmen of Central Ohio Paper Co. Meet

[FROM OUR REGULAR CORRESPONDENT]

COLUMBUS, Ohio, January 3, 1931.—With optimism for 1931 the ruling spirit of the meeting, 80 salesmen of The Central Ohio Paper Company, gathered at the local Copco paper house Saturday of last week to attend the annual sales meeting of the company They listened to talks by mill representatives and sales reports from the eleven middle western cities, in which the company is represented by paper houses and sales offices, and left for their homes quite convinced that the new year will see constantly improving business conditions.

That the company has been hustling during the past year and made it a successful one from a sales standpoint was indicated by the fact that almost as many salesmen as in past years made the "100 per cent Club," through achieving sales quotas from 5 per cent to 10 per cent larger than in 1929. It was announced that every one of the 327 members of the Copco organization was working, with none laid off. This condition has maintained throughout the year.

The sales meeting was divided into two sections for coarse paper and fine paper salesmen. F. T. Burkhardt, of the F. T. Burkhardt Company, Holyoke, Mass., was the only out-of-town representative to speak to the fine paper meeting.

At the coarse paper sessions, speakers were: George K. Gibson, Mosinee Paper Mills Company, Chicago; J. A. Clark, Lily Tulip Cup and Specialty Company, Chicago; Sherman Perry, the Crystal Tissue Company, Middletown, O.; E. E. Brown, Lawrence Bag Company, Middletown, Ohio, and Frank Vaughn Bay West Paper Company, Green Bay, Wis.

The meeting closed with the annual president's dinner and dance at the Columbus Country Club, at which officers and employees of the company were guests. It was attended by 275.

New Wood Room Starts At Rhinelander

[FROM OUR REGULAR CORRESPONDENT]

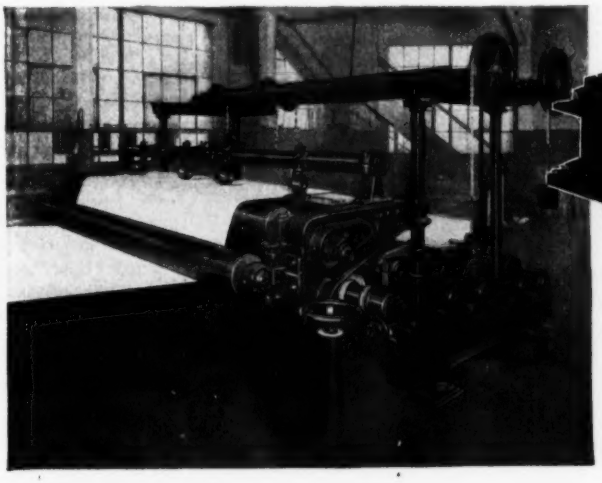
APPLETON, Wis., December 29, 1930—Operation of the new $100,000 wood room of the Rhinelander Paper Company, Rhinelander, Wis., was started last week. One of the departments was shut down for a few days until the new production facilities could be co-ordinated, but the mill is now operating on an almost full-time scale. Orders are now booked ahead for several months for glassine and greaseproof papers. This completes a series of improvements which have amounted to almost a complete reconstruction of the mill.

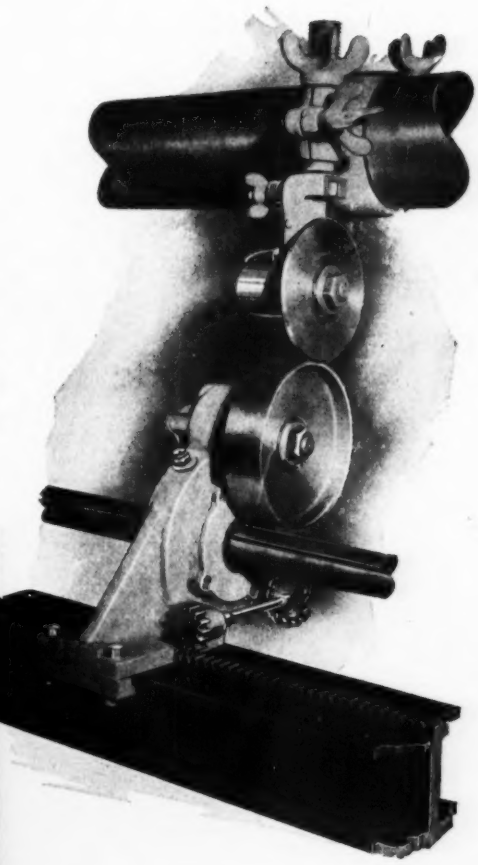
Goes With Rutter & McNaught

BOSTON, Mass., January 5, 1931.—William B. Wheelwright has joined Rutter & McNaught, Inc., paper merchants, 185 Summer street and will represent them in Boston and some of the outlying districts. For the past year Mr. Wheelwright has been the New England representative of the Seaman Paper Company whose Boston office is being discontinued.

More output from your winders

There will be less time lost from winding or cutting, and less torn paper going back to the beater, if you use the new M & W Ball Bearing Slitters with quick-removable bottom blades.

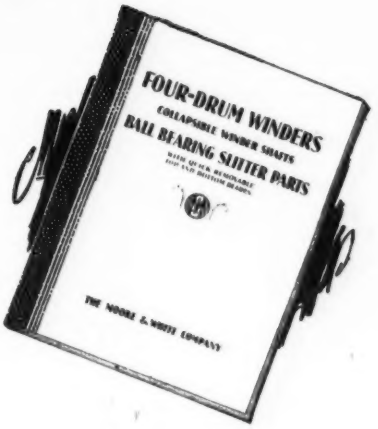




Any blade (top or bottom) can be replaced in a few seconds, without disturbing any other slitter, when resharpening is needed. Hence there is no temptation to take a chance on a dull or nicked blade. Simply undo the one large nut on the blade shaft, and the blade comes off.

The bottom blades are gear driven at three times the shaft speed. This means a slow-running, vibrationless shaft. With ball bearings throughout, blade sticking and blade wabble are eliminated. Hence the blades in this new slitter are longer-lived as well as easier to replace.

Use the new M & W Slitter Parts ahead of the Winders. Use the Slitters in connection with your Cutters.



See description in recent catalog on Four Drum Winders and Slitters: write us if you haven't received your copy.

THE MOORE & WHITE COMPANY
Established 1885
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New York Trade Jottings

H. A. Beach, secretary and puchasing agent of Dard Hunter Associates, Lime Rock, Conn., is a New York visitor this week.

* * *

Joseph Rebholz, paper boxes, has been incorporated under the laws of New York State, with a capital stock of $30,000. Dalziel & Grange, 233 Broadway, Attorneys.

* * *

Stephen A. Powell & Co., paper products, has been chartered under the laws of the State of New York, with a capital stock of $250,000. J. A. Morison & Co., 41 Park Row, Attorneys.

* * *

Among the firms included in the list of tax refunds made by the Treasury Department in the fiscal year ended June 30 and just released for publication, is the West Virginia Pulp and Paper Company, New York, $89,680.61.

* * *

Arthur Schroeder, sales manager of Pejepnect Paper Company, 42 Broadway, New York, announces that Alfred T. Carter has joined their sales organization. Mr. Carter has heretofore been employed by Crane Pulp and Paper Company, and Paper City Manufacturing Company.

* * *

The regular weekly luncheon and meeting of the New York Division of the Salesmen's Association of the Paper Industry was held last Monday at George's Restaurant, 507 Lexington Avenue. Business conditions were freely discussed and those present were hopeful of improvement in the current year.

* * *

Through the courtesy of the Alling & Cory Company and the S. D. Warren Company, students of the Graphic Arts Division of New York University were shown recently in one of the class rooms at Washington Square a moving picture of paper making, with Ellsworth Geist as lecturer. The same class also enjoyed an address on the making and properties of hand-made paper by Thomas N. Fairbanks.

* * *

The United Conveyor Corporation, manufacturers of the Nuveyor, the Steamatic, the Steam Jet Ash Conveyor, Pneumatic Conveyors and Storage Tanks, of Old Colony Building, Chicago, Ill., announces the opening on January 2 of its New York City office at 101 Park Avenue. This office will be directed by J. J. McNulta, who is well known through his past sales and engineering work with the Girtanner Engineering Corporation. Mr. McNulta will be in charge of the New York and New England districts.

* * *

The classification of certain paper, used for making school tablets and kindred articles, was involved in a tariff controversy which the United States Customs Court here has just decided in favor of the Government. The paper, entered at Baltimore in the name of the Baltimore and Ohio Railroad Company, was classified by the customs officers as printing paper, with duty at one-quarter of 1 cent per pound and 10 per cent ad valorem under Paragraph 1301, Tariff Act of 1922. The importers claimed free entry under Paragraph 1672 as standard news print paper. Presiding Judge Fischer of the Customs Court writes the opinion in this case, upholding the collector's assessment under Paragraph 1301.

* * *

Thomas W. Cole, sales manager of the Bayless Pulp and Paper Corporation, with offices at 2 Lafayette street, New York, announces that James M. Denton, who formerly was sales manager of the Bedford Pulp and Paper Corporation, is now connected in the capacity of salesman with the Bayless Pulp and Paper Corporation, manufacturers of high grades of mitscherlich, water finish and dry finish papers, as well as the famous brand of Water Finish Red Cap. Mr. Denton will travel for the Bayless Pulp and Paper Corporation in the Southern States and the Central West, where he is well acquainted with the trade. Mr. Denton will make his headquarters in Atlanta, Ga., where it will be centrally located for his territory.

* * *

The Aldine Paper Company, Inc., 333 Hudson street, New York, N. Y., just recently introduced a new mill brand paper known as Celestial Greeting and Cover. This is a beautiful cloud-effect paper made in various harmonizing shades and is manufactured in the following sizes and weights: 22x34—112 (M), 20x26—130 (M), 23x35—201 (M) and 22x34—336 (M). The 22x34—112 (M) paper is ideally suited for greeting card envelopes, leaflets, French folds, text pages of booklets, jackets, and for many other purposes. The three-ply, pasted, makes a very attractive greeting card, folder, menu, etc. The cover weight makes an excellent booklet cover. Its rich appearance creates the impression of a much higher priced stock. A beautiful new sample book is ready for distribution, and anyone desiring to obtain a copy can obtain same by making a reques; direct to the Aldine Paper Company, Inc.

* * *

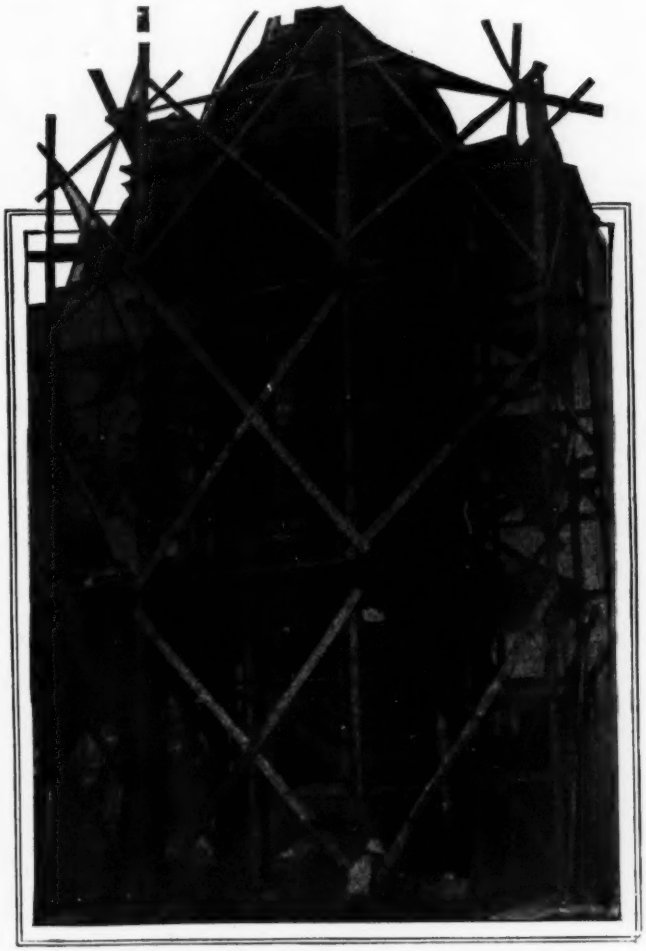
A meeting of the Waste Paper Division of the National Association of Waste Material Dealers, Inc., was held last week, in the Hotel Astor, New York, for the purpose of approving the educational campaign undertaken by the association with a view to bettering the very unsatisfactory situation now existing in the waste paper industry. Three letters to be sent respectively to waste paper producers and accumulators, consumers and dealers, in which the difficulties and problems of the waste paper trade are outlined, were read, discussed and formally approved. The meeting also passed a motion approving the appointment of a committee to represent the division of the association at the Trade Practice Conference of the Waste Paper Institute when the conference is held. John J Byrnes, of Sol Ash, Inc., acted as temporary chairman at the meeting, assisted by Charles M. Haskins, secretary of the association, and Harry F. Masman, traffic manager of the association.

Conservation Commissioner Retires

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., December 27, 1930.—Announcement is made that Alexander McDonald, of St. Regis Falls, will sever his connections as Conservation Commissioner on January 1 following a lengthy term of office in that position. The re-appointment of Mr. McDonald to the post last year brought forth considerable criticism from the political enemies of Governor Roosevelt who felt that a Democrat was entitled to it. During the greater portion of his life the retiring commissioner has been one of the outstanding figures in the political life of the State and his work during the past eight years as head of the Conservation Department has been warmly commended by all political factions.

During his regime the forest preserve resources of the state were extended to approximately 2,000,000 acres and a program of reforestation such as never before attempted was launched with good results. Under his direction 40,000 acres of abandoned farm lands were acquired by the state for reforestation purposes and the department estimates that the State will be enriched to the extent of $500,000,000 when the program is completed. He was appointed to the department in 1922 and as a result of his efforts the number of trees supplied from state nurseries for reforestation was trebled. He was also a principal factor in bringing about the passage of a $10,000,000 bond issue to enlarge the forest preserve. During a term in the Legislature he served as head of the powerful ways and means committee and his efforts were largely instrumental in the creation of the state conservation committee.



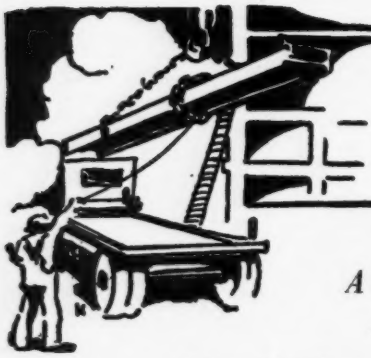
Erecting a Manitowoc Digester

For more than a quarter of a century we have been designing and building paper mill equipment. In all these years many installations have been made in mills in the United States and Canada. Repeat orders indelibly indicate the kind of service Manitowoc equipment is giving.

It will pay you, when in the market, to consult us—to let our engineers co-operate with you. An inquiry does not obligate you.

We design and build barking drums, sulphite digesters, experimental digesters, globe rotary digesters, cylindrical digesters, rotary lime kilns, incinerators, disc evaporators, air nozzles, diffuser tanks and swing pipes, bleach and clay mixers, rod mills, Moore speed-cranes, shovels, draglines and trenchoes.

MANITOWOC ENGINEERING WORKS
MANITOWOC, WISCONSIN



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Springfield, Mo.—The Springfield Tablet Manufacturing Company, Jefferson and Mill streets, has awarded a general contract to M. E. Gillioz, Monett, Mo., for proposed new addition to paper goods plant and will proceed with superstructure at once. It will be a two-story and basement 60 x 77 feet, estimated to cost close to $45,000, with equipment. It is proposed to have the unit ready for service in March.

Sturgis, Mich.—The National Carbon Coated Paper Company, Sturgis, is giving employment to about 250 operatives, or close to the same number at this time a year ago. The plant is running on a good production schedule, with advance business about 10 per cent under that of January 1930. It is expected to hold to present rating for several months to come.

Salem, Mass.—The Salem Waste Paper Company, 69 St. Peters street, has had plans prepared for a new one-story plant unit for storage and distributing service to be 46 x 125 feet, located on St. Peters Street Extension, reported to cost close to $22,000. J. M. Grat, 175 High street, Boston, Mass., is architect.

Lock Haven, Pa.—The Clinton Paper Company, recently organized by local interests with a capital of $50,000, is said to have plans under way for early operation of local factory for the manufacture of a line of paper goods, including tablets, containers, etc., as well as paperboard specialties. The new company is headed by M. M. Mack, M. D. Achuff and M. H. Blake, all of Lock Haven. Last noted has been elected treasurer.

Baltimore, Md.—L. Gordon & Son, Inc., manufacturer of paper boxes and containers, occupying a portion of building on south Paca street, plans replacement of damage in plant, recently caused by fire. The complete loss is reported at $50,000, including building and a number of other industries.

Kimberly, Wis.—The Kimberly-Clark Corporation, North Commercial street, Neenah, Wis., has closed bids on general contract for proposed new addition to mill at Kimberly, and will make award for superstructure at an early date. It will be one-story and basement, 58 x 120 feet, and equipped as an acid plant, reported to cost more than $80,000. Company engineering department is in charge.

New York, N. Y.—The Taylor Paper Company, Inc., has been organized with capital of 100 shares of stock, no par value, to deal in paper goods, and will take over and expand company of same name with local headquarters at 300 Fourth Avenue. A storage and distributing warehouse is operated at the same location and will be continued as heretofore. Frank E. Taylor and Kenneth R. Gregory head the new organization.

Kalamazoo, Mich.—The Sutherland Paper Company is continuing production on a capacity schedule with full working force, and expects to hold to that basis for an indefinite period. The mill has a rating of 270 tons of paper board per day, and the company is said have secured some substantial advance business.

Greenville, Miss.—The United States Gypsum Company, 300 West Adams street, Chicago, Ill., has completed arrangements for the purchase of the insulating board manufacture plant of the Chicago Mill and Lumber Company, at Greenville, and will take over and operate the property at once. The new owner is said to have tentative plans for improvements in the plant for increased production, to be carried out at a later date. The Chicago Mill and Lumber Company is an interest of the Paepcke Corporation, 111 West Washington street, Chicago, which also operates the Container Corporation of America, manufacturer of corrugated paper boxes and containers. The Greenville plant has a rated output of 250,000 feet of insulating board a day, and will be used by the purchasing company to replace its activities in connection with a similar product of the Insulite Company, for which it has been a distributor, and which arrangement has now been discontinued.

Lowell, Mass.—The Middlesex Paper Tube Company, Lowell, plans rebuilding of portion of plant recently damaged by fire. An official estimate of loss has not been announced.

New York, N. Y.—The Progressive Fibre Specialty Company, 101 Greene street, has arranged for a lease of space in the building at 149-53 Wooster street, and will occupy for plant service. It is understood that company will remove its present works to the new location and will increase capacity.

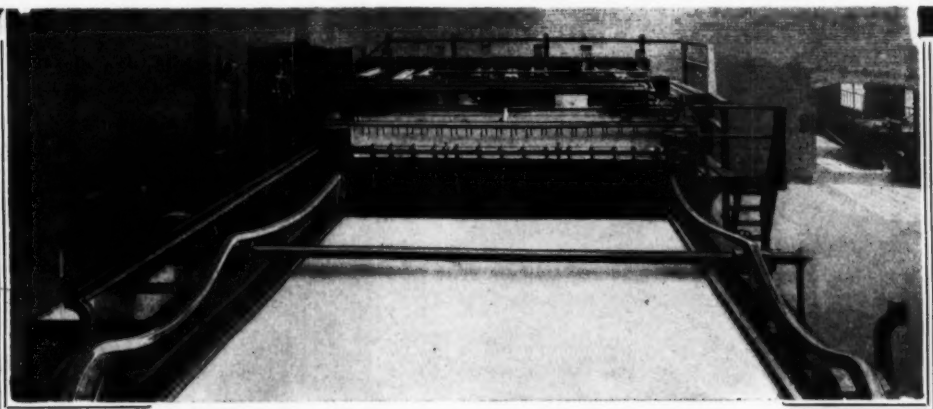
Kalamazoo, Mich.—The Rex Paper Company is running on close to normal production schedule giving employment to a working quota of 183 persons, or approximately the same as at this time a year ago. Advance orders are equalling the business secured in January 1930, and prospects are for maintaining present rate of output for an indefinite period. The company specializes in the production of enameled book and cover stocks.

Erie, Pa.—The H. F. Watson Paper Company, 143 East 16th street, has completed plans for a new addition to its mill, to be one-story, 80 x 200 feet, designed for storage and distributing of raw materials. The company will also build another one-story unit, 46 x 125 feet, to be used as a cutting department. It is proposed to begin superstructure at an early date. Entire project will represent an investment of close to $50,000. The company is affiliated with the Ruberoid Company, 95 Madison avenue, New York.

Bingham, Me.—The Central Maine Power Company, Augusta, has started up the first generating unit at its new hydroelectric generating plant on the Kennebec River, near Bingham, and output will be utilized for operation of the new newsprint mill of the Maine Seaboard Paper Company at Bucksport, Me., about 70 miles distant. The hydroelectric project will represent an investment of about $12,000,000, and a considerable portion of the output, including other generating units to be placed in service later, will be used at the newsprint mill. The latter plant is reported to have secured contracts to insure maximum output for more than three years to come, with a plant rating approximating 300 tons a day. Walter S. Wyman is head of both organizations.

EVIDENCE

OF VOITH INLET SUPERIORITY



On every grade of paper made on a Fourdrinier the Voith Inlet is demonstrating its superiority. For example: In a *Bond Mill* a Voith-Sliced Machine is turning out paper of improved quality at 25% increased production. . . . In a *Glassine Mill* a Voith-Sliced machine is accomplishing similar results. . . . . In *another Mill* a 30% caliper variation was reduced to 5%. . . . In a Book Mill the Vice-President wrote, "Your Voith Inlet has paid for itself in sixty days." . . . In a *Glassine Mill* a machine previously equipped with every other available device gave better formation and 20% increased production after a Voith Inlet was installed.. . . . In a *Tissue Mill* the fastest tissue machine in the country is Voith-sliced. . . . In *Kraft Mills* the largest machines in the country are Voith equipped. . . . These facts are cited from 292 diversified installations. . . . With such a background of experience to serve you we invite your problems. . . . . Write the . . . . .

Valley Iron Works Company,
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Equipment for Paper and Pulp Mills

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POWER PLANT SECTION

REDUCING POWER COSTS THROUGH UNIT TREATMENT

Conducted by **Reginald Trautschold Consulting Engineer**

Instrument Applications in Pulp and Paper Mills[1]

Cut Costs and Safeguard Profits

Part I

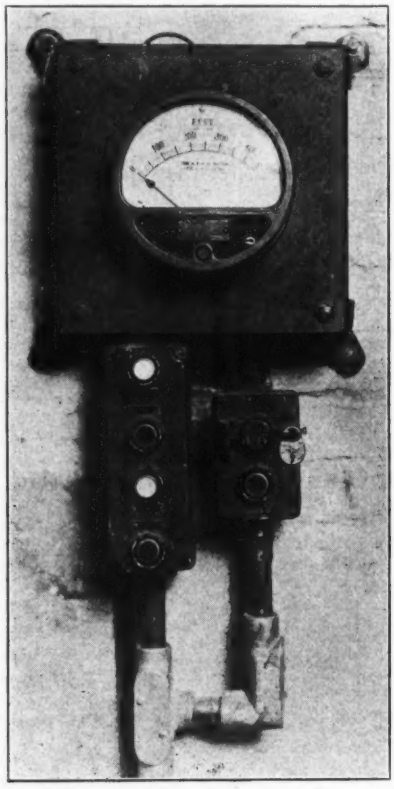
Few mills appear to have any real appreciation of the part played by indicating and recording gauges in controlling their production costs, nor of how essential these instruments are in the economical conduct of the pulp mill, in the production of paper or in the operation of the power plant. Some of the instruments provided seem actually to be accepted simply as component accessories to equipment, the functions of which are only half understood, while others are looked upon, perhaps, as refinements which can be dispensed with, so far as the daily run of mill activities is concerned. Such situations are all wrong, of course, for an instrument is invariably provided for a very definite purpose and rarely, if ever, is it a refinement which can be done without even temporarily, without inviting some substantial loss.

True, the instruments themselves discharge no active regulation, but they do supply invaluable information which shows what regulation should be made. It is for this reason they are so important. They warn rather than act, but a warning is infinitely to be preferred to an operation after the damage has been occasioned.

In an industry where so many individual processes are entailed, the satisfactory consummation of each one of which is dependent to a marked degree upon the successful completion of the preceding steps, there are of necessity numerous critical points in the cycle of operations. Even a slight error in temperature, pressure or movement at almost any stage influences every subsequent stage and if it should occur early in the cycle, it may readily assume serious proportions at some more advanced stage. A collapse anywhere along the line is bound to be serious, for subsequent operations and processes become ineffective and earlier activities have to be arrested until the suitable correction has been made. Furthermore, much, if not all, of the work in process may have to be sacrificed if the interruption is at all serious.

It is well to enlarge upon the value of instruments in pulp and paper mill operation in this manner, for economical mill operation is a question, not of particularly low cost consummation of any few of the numerous processes entailed, so much as it is upon effecting a satisfactory balance and coordination of all the many steps involved. Conditions must be substantially correct from first to last and this entails knowledge before regulation and control can be exercised, knowledge which can only be cheaply acquired by the extensive use of modern indicating and recording instruments. Every critical point in pulp and paper making should be supplied with means of instantly ascertaining the existing conditions and wherever a definite standard measure is lacking or is not essential, the instruments should also provide a continuous charted record of their findings.

It is quite out of the question, of course, to enumerate all of the many instruments which should advisably be employed in either a particular or a typical mill, or even to indicate their approved applications. At the same time, any very detailed description of some particular instrument control installation is apt to lack sufficient general interest. Some few of the more



Courtesy: Westinghouse Electric & Mfg. Co.

FIG. 1

Indicating type electrical tachometer, showing indicator and speed control with start, fast, slow and stop pushbuttons.

[1] For previous discussion on instruments see PAPER TRADE JOURNAL, Aug. 18, Nov. 24, 1927, May 3, May 31, June 14, July 12, Aug. 23, Nov. 8, 1928, Nov. 28, 1929, April 10 and April 24, 1930.

PERFORMANCE PLUS

CHROMIUM plating is the ounce of prevention worth a pound of cure for wear and corrosion. A CRODON-plated surface is HARD—more unyielding than case-hardened steel—nine-tenths as hard as the diamond. It resists corrosion, heat and the effects of practically all acids. Steel, iron, copper and most other metals are successfully plated. Chromium-plated surfaces are bright, untarnishing, abrasion-resisting and extremely smooth.

THE acceptance of industrial chromium plating is essentially due to one thing—*outstanding performance.* Consider these typical examples:

	Production, Unplated	*Chromium-Plated*	*Increased Life*
Embossing Roll	3,000 reams	18,000 reams	500%
Embossing Roll	4 months	15 months	275%
Embossing Roll	6,000 reams	12,000 reams	100%
Printing Roll	50,000 lb.	300,000 lb.	500%
Evaporator Tubing	11 months	42 months	282%

CRODON increased the average productive life of this equipment 331%—and the rolls and tubing *were still in regular operation.* Moreover, production from the first embossing roll after 15,000 reams was identical in quality with samples taken at 5,000 reams from the same roll.

SAVINGS LIKE THESE ARE WORTH WHILE!

HOW much CRODON can save you depends, naturally, on the operating conditions. The life of calender, embossing, printing and other rolls is usually increased from one to six times by this process. Many other parts are equally benefited. Replacement costs are saved—operating delays are prevented—*permanently* improved quality of product is assured.

THE experience of our organization has been gained through persevering research and thorough analysis of actual operating conditions. CRODON is setting new and higher production standards in the plants of our customers, with corresponding cost reductions. Let us assist you in the solution of problems involving wear and corrosion.

Write for our Bulletin No. 2, which describes the many CRODON applications in the paper industry. Have you received your copy of "Chromium—Harder Than Steel"? It will be sent you upon request.

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generally employed instruments in mills and power plants and their customary functions may be mentioned to advantage, however, as a kind of introduction to a more detailed consideration of a few of the more comprehensive and noteworthy installations for specific purposes in individual establishments.

Accepted Instruments in Pulp Mill Operation

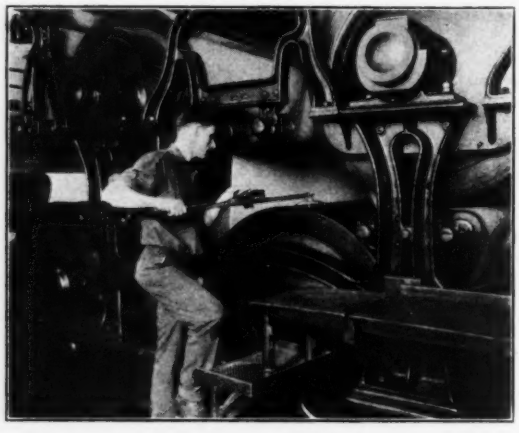
In the mill producing ground wood pulp, for instance, the grinders, presumably motor driven, should be supplied with an ammeter in the motor circuit to supply warning against overloads. An indicating temperature instrument is also essential in the discharge line of the grinder, since high temperature burns the stone and is very apt to destroy the fibre. The ammeter in the motor circuit of the Jordan is supplied for the same reason as that in the grinder circuit and while temperature regulation is not so important in the case of the Jordan, a motion recorder should be applied to the plug to indicate the condition of the stock produced.

A temperature indicating instrument can very profitably be employed in connection with the bleaching operation, to warn against loss of stock. A depth, or level, gauge for the bleach liquor storage tank also proves valuable, to check the amount of bleach liquor consumed, giving a direct reading of considerable assistance in cost accounting.

In mills where the wood chips are cooked with sulphurous acid or calcium sulphite in the production of pulp by the sulphite process, an accurate pyrometer in the outlet from the combustion chamber of the sulphur burner serves as a convenient guide to the operators, since the maintenance of a uniform temperature serves to insure uniform sulphur-dioxide content. The instrument is also valuable in temperature control, a high temperature indicating the giving off of sulphur-trioxide. A recording liquid level gauge should also be provided for the acid storage tank.

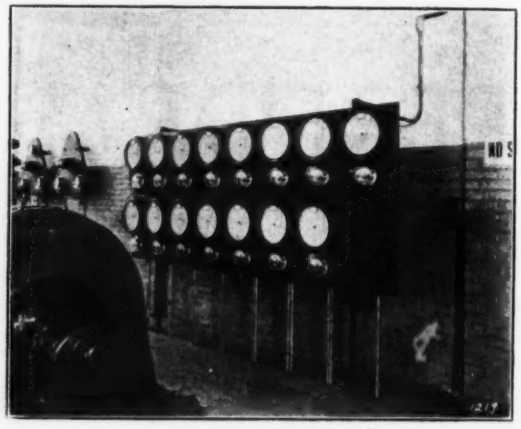
For the digestor, both a pressure gauge and a temperature indicating instrument should be furnished, both being necessary in order to follow a definite schedule for uniform cook. A combination pressure and temperature recorder is also a desirable refinement, in that it provides a combined record of considerable service in digestor regulation.

If beaters are employed, a motion recorder attached to the lighter bar will show the position of the beater roll and will, if the beater is directly motor driven, with an ammeter connected in the motor circuit assist in maintaining a uniform load and securing uniform heat. A pressure gauge connected to the bed plate is helpful in showing the existing pressure and may forestall damage to roll or plate. A thermometer inserted through the side of the beater is also of a good deal of assistance, as color variation in stock can be closely controlled by uniform temperature.



Courtesy: Cambridge Instrument Co.

FIG. 2
Taking temperatures of paper drier rolls with surface contact pyrometer.



Courtesy: Bailey Meter Co.

FIG. 3
Centralized meter panel at the Lynchburg, Va., plant of the John H. Heald Paper Co.

A motion recorder proves a valuable adjunct to a washer and a liquid level gauge for the stuff chest checks the amount used. The latter instrument may also serve as a consistency regulator if the amount of stock used in the beater is known.

Instruments for Jordans and bleaching operations in the sulphite mill are similar to those advisably used in the ground wood process of pulp preparation. They are also used extensively, even generally, for Jordan and bleaching operations in pulp mills where the wood chips are cooked with sodium sulphate.

In both the soda and sulphate processes, the complement of advisable instruments and their functions are very similar and in many instances the same as in the sulphite process. That is the instruments for the beaters and stuff chests, as well as those for Jordan and bleaching operations. For the digestors, the instruments are similar also, but usually of slightly greater range, temperature and pressure conditions being both slightly higher.

The evaporators employed in the soda process, for the recovery of soda and black ash, should be supplied with vacuum gauges inserted in the side of the black liquor tank, in order to secure maximum efficiency, as well as suitable thermometers. Another useful instrument for the evaporator is a pressure gauge at the water line to check the time and rate of water admission. A portable pyrometer should also be provided for the black ash furnace.

In the production of rag stock, the recommended complement of instruments are about the same as those for the sulphite process, so far as the beaters and stuff chests are concerned, while the instruments for bleaching operations are the same as in the case of pulp production by the ground wood process. Where board stock is made from old paper, about the only instrument required is a motion recorder for the beater.

Instruments for the Paper Mill

In the paper mill proper, the paper machine commands first consideration, presumably, and at least three distinct varieties of instruments should be employed. A tachometer of the indicating and recording type is virtually essential, such an instrument usually being attached to a positively driven idler or spring roll. It provides the essential information for the regulation and maintenance of the correct paper speed and also records a check on production and breaks. A pressure gauge for the steam line is also necessary and a contact, surface temperature indicator for taking the temperatures of the various drier sections.

A pyrometer or thermometer of the indicating and recording variety for taking surface temperatures of the calender rolls

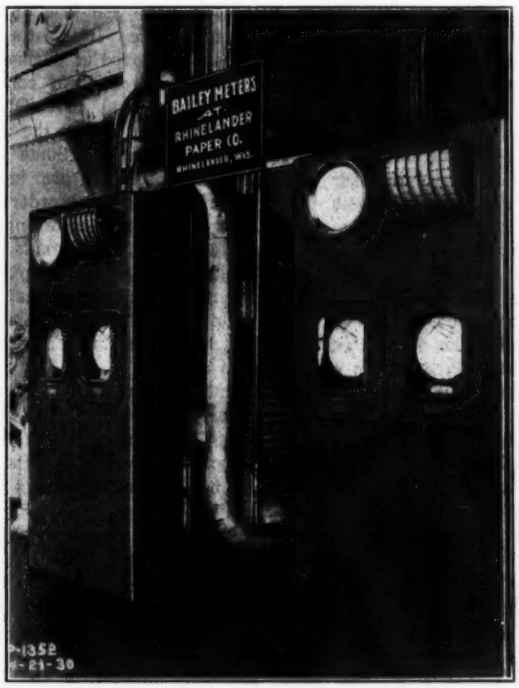
aids greatly in maintaining a correct and uniform roll temperature, while a bulb thermometer passing through packing glands into the end of the journal bearing proves an effective safeguard against excessive temperatures in the drier rolls. A thermostat and temperature recorder with their bulbs suspended inside the drying oven go far to speeding up the drying process.

In the finishing room, thermometers and thermometer-controllers are helpful in the size tank and are of great assistance in the control of the size adherence to the paper, insuring uniform coating of writing paper, etc. and, of course, conserving the size. In starch board production, a thermometer of this character in the side mix tank proves an excellent guide in avoiding the cooking of the size before its addition to the stock. The guidance of temperature readings is also important in waxing operations, to unify coatings and for the economical use of the wax. Even in creping paper, a themometer-controller should be used where creping liquor is employed and, of course, a suitable tachometer with a magneto at each end of the machine is indispensable in quality creping. The differential gives the amount of crepe.

This list, it will be noted, includes no flow, or fluid, meters, the need for which is quite generally appreciated, for the reason that their value in the regulation of mill operation is better brought out by more specific references to particular applications. Even so, the list, which is very far from being complete, will suffice to show that the use of instruments in pulp and paper mills should command much consideration and is extremely important in cost cutting and safeguarding profits.

Instruments in the Power Plant

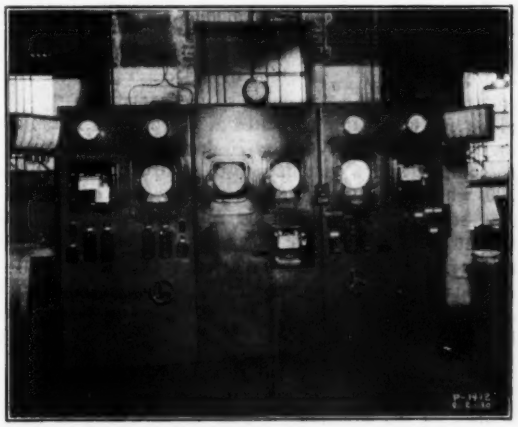
In the steam power plant, there is need for steam gauges, temperature instruments for feed water heaters, closed or of the open type, for noting flue gas temperatures, etc., besides a goodly number of steam flow meters. In the engine room, steam gauges as a check on boiler operation are essential on the steam lines to turbines, etc., and vacuum gauges as well. Generators should be provided with voltmeters to check operation, since low voltage is reflected in low speeds and curtailed output.



Courtesy: Bailey Meter Co.

FIG. 4

Individual boiler meter panels at the Rhinelander Paper Co. plant at Rhinelander, Wis.



Courtesy: Bailey Meter Co.

FIG. 5

Boiler room instruments at the Nekoosa-Edwards Paper Co. plant at Port Edwards, Wis.

In the hydraulic plant, the special instruments are for the most part liquid level gauges and flow meters and, of course, a complete complement of instruments for caring for the electrical side of a hydro-electric station. Even when purchasing electric energy, instruments are essential; voltmeters to check the supply, ammeters and wattmeters. Frequency meters are also very important in supply checking, for the frequency of the supply affects the speed of the motors, though not the ammeter or watthour meter readings. These should all be placed in the feeder circuit in order to enable the load to be held economically on peak demands.

Of course, any mill power plant not better provided with instruments than this would not fare very well in these days of exacting requirements, but almost any attempt to cover the needs of the modern power plant would necessitate far more space than a general discussion of this character can supply. A better plan is to refer briefly to a few individual installations in specific mills. These will show, at least, that great progress is being made in acquiring knowledge of conditions at critical points in many of the more modern mills.

$6,000 Wisely Spent

The illustration of the centrallized meter panel in the turbine room at the Lynchburg, Va., plant of the John H. Heald Paper Company will serve admirably for the first of these more intimate portrayals of the value of instrument control and regulation. Briefly summarized, the functions of the fifteen instruments shown, all electrically operated fluid meters, are to record and integrate the following factors:

High pressure steam in the main header (Conditions: 275 to 325 pounds per square inch pressure and 100 degrees Fahrenheit superheat.)

Makeup to extract plant (Steam conditions: 275 to 325 pounds per square inch pressure and 100 degrees Fahrenheit superheat.)

High pressure steam to digester.

Live steam to paper machines.

High pressure steam to 4,375 kva. turbine.

High pressure steam to 625 kva. turbine.

Exhaust steam from 4,375 kva. turbine (Steam conditions: 20 pounds per square inch pressure, dry and saturated.)

Exhaust steam from 625 kva. turbine (Steam conditions: 20 pounds per square inch pressure with 10 degrees Fahrenheit superheat.)

Low pressure steam to feed water heaters.

Makeup to extract plant (Steam conditions: 20 pounds per

square inch pressure with 10 degrees Fahrenheit superheat.)
Makeup to extract plant (Steam conditions: As above.)
Low pressure steam to machine dryers.
Low pressure steam to machine room header.
Feed water pump supply (Water at 215 degrees Fahrenheit.)
Clear water to plant (Water at 70 degrees Fahrenheit.

This comprehensive installation of instruments cost about $6,000.00, which in view of the fact that the mill has a capacity output of some 250,000 pounds per 24 hours, supplies a wealth of essential information at a very nominal cost. Just what is the annual return on the investment cannot be stated, but it is very certain that without the control that the detailed information acquired supplies that the unit cost of the mill's output would soar and quickly wipe out the margin upon which the mill operates.

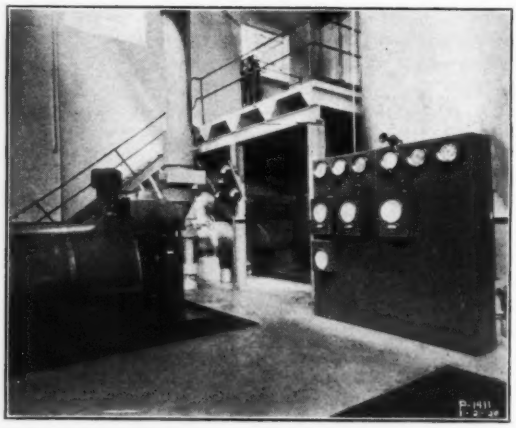
Realizing High Combustion Efficiency

The view of the individual boiler meter panels in front of the steam generators in the boiler house of the Rhinelander Paper Company, Rhinelander, Wis., illustrates a noteworthy instrument control right before the eyes of the operators. The boilers at this plant are operated at fairly high pressure, with some 100 degrees of superheat, and the information necessary for meeting these exacting requirements is provided by this compact and relatively inexpensive complement of instruments.

In addition to the steam gauge mounted at the upper left hand corner of the panels, each board is provided with a boiler meter, a temperature recorder to its right and in the upper right hand corner with an instrument designated as a multi-pointer gage. The boiler meters indicate, record and integrate the steam flow, record air flow supplied for combustion and record the steam temperature, all upon a single, uniformly graduated, 24-hour chart. They serve not only as accurate steam flow meters, but as a dependable guide to the operators in servicing the boilers so as to maintain the best combustion efficiency at all times.

The multi-pointer gage above the boiler meter indicates air duct pressure, windbox pressure, furnace draft, boiler outlet draft and economizer outlet draft. Information regarding any of these important conditions is obtained at a glance at the respective scales.

These highly instructive, individual boiler panels cost, incidentally, approximately $1,300.00 per boiler, of which there are two, each boiler containing some 8,340 square feet of heating surface and being stoker fired. That is, for an investment of a little over $2,500.00, virtually the complete control of the power and steam demands for a mill of considerable size and producing a wide variety of papers is vested in a complement of instruments which go far to insure efficient plant operation and low steam costs.



Courtesy: Bailey Meter Co.

FIG. 6

Turbine room instrument boards at the Nekoosa-Edwards Paper Co. plant.

Boiler and Engine Room Instruments

The three-board panel in the boiler room at the Nekoosa-Edwards Paper Company's power house at Port Edwards, Wis., typifies another of these modern boiler room control systems. The plant, in this case, is operated on pulverized coal, steam being generated at a pressure of some 385 pounds per square inch and charged with quite a high degree of superheat. Two modern water-tube boilers constitute the battery for the plant, each containing some 9,110 square feet of heating surface.

The instrument complement includes two boiler meters, one for each boiler, which record, indicate and integrate the steam flow and record the air flow supplied for combustion, to guide the operators in obtaining efficient combustion. The multi-pointer gages flanking the boards carrying the boiler meters supply what are termed the secondary factors of boiler operation; indicating the draft at the boiler outlet and at the heater outlet, the furnace draft, the secondary air pressure at burners No. 1 and No. 2 for each furnace, and the forced draft fan discharge pressure. A recorder instrument charts the steam pressure of each boiler on a single chart and a mechanically operated fluid meter records and integrates the rate of flow of feed water, at the same time giving an auxiliary record of the feed water pressure on the same chart.

The instruments in the turbine room of the plant are shown in the final illustration. Three mechanically operated fluid meters record and integrate the steam flow to the closed feed water heater, steam flow to one of the turbines and the total feed water flow to the boilers. A recording instrument with three pens traces the temperature of the feed water entering and leaving the heater and also the temperature of the steam exhaust from the turbine whose steam supply is measured.

(To be continued)

Boston Paper Market Fairly Active

BOSTON, Mass., January 5, 1931—The new year has started fairly well in the wholesale paper market here. It is estimated that about the same volume of merchandise moved as during the previous week. A representative of a widely known concern which manufactures stationery, book papers and cover stocks speaks very favorably of the business transacted during the week and is optimistic in regard to sustained activity. Some who report quietness in their lines feel that prospects are bright, but that it is necessary to exert real effort in securing orders.

Printers are going after business cheerfully, according to statements in the fine paper trade. Rumors that some mills may reduce prices of fine papers, particularly on large tonnage, are heard. The situation in blotting papers is practically unchanged, although some see a slight tendency towards improvement in the demand. The outlook for wrapping papers continues favorable, and the year has begun well in actual orders.

December is normally a slow month in box board, and was quieter than usual in 1930, but the early days of the year show possibly a slight improvement. The last year has not been particularly good for a number of box manufacturers, although one who thought that figures would be "in the red" found that he had made some profit.

The paper stock market remains practically as dull as it has been for some time. Consumers are apparently well supplied with waste paper, and in some cases dealers prefer not to take any from large producers if they are obliged to pay for it. Roofing rags, however, are not very plentiful, according to reports.

Franklin Dorset Joins Duplex Envelope Co.

[FROM OUR REGULAR CORRESPONDENT]

RICHMOND, Va., January 5, 1931.—Franklin Dorset, formerly of the Albemarle Paper Manufacturing Company, has become associated with the Duplex Envelope Corporation.

Every COLOR WE MAKE— *every* TIME WE MAKE IT

WHETHER by accident or intent, any departure from *exact specifications* in the manufacture of a dye, will show up in the *results.* In the laboratories and plants of the National Aniline & Chemical Co., Inc., every color we make, every time we make it—is tested by every device, method and machine known to modern science to insure perfection . . . That is why National Dyes maintain the same high degree of quality, uniformity and dependability . . . today, tommorrow and always.

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COMING EVENTS

American Paper and Pulp Association, fifty-fourth Convention and Meeting. Pennsylvania Hotel, February 16-19. Annual Meeting, Thursday, February 19. Annual Banquet, Grand Ball Room, Thursday, February 19.

National Paper Trade Association of the United States. Convention, Pennsylvania Hotel, February 16-18. Luncheon, Wednesday, February 18.

Technical Association of the Pulp and Paper Industry. Convention, Pennsylvania Hotel, February 17-19. Luncheon, Thursday, February 19.

Salesmen's Association of the Paper Industry. Annual Meeting, Pennsylvania Hotel, Tuesday, February 17. Luncheon, Tuesday, February 17.

New York Association of Dealers in Paper Mills' Supplies, Annual Banquet, Hotel Commodore, Tuesday, February 17.

PROPER BUYING

Proper purchasing assumes a place of first importance in the field of industry at this time., says George A. Renard, secretary-treasurer of the National Association of Purchasing Agents, in the *New York Times*. Convinced that recovery from the present business slump is evident in a number of quarters, Mr. Renard pointed out that companies which hope to keep pace with the recovery will find that they must give increasing thought to their purchasing.

"Intelligent buying will be the key to success in most organizations," he continued, "and those who underrate its value will suffer. Although many commodities are now sold below cost, some will go even lower and others are due for an advance. Inventory shrinkage is the great enemy of profits and intelligent study of market conditions can and does reduce this shrinkage."

Striking at those who are attempting to reverse the normal order of things by increasing prices to stimulate sales, Mr. Renard said executives responsible for such moves are making mistakes which will retard rather than help the recovery in their fields.

"Usually commodity prices follow this trend of business," he explained. "This is natural because increased demand is the only sound reason for higher prices."

The majority of purchasing agents anticipate an upturn in business toward the end of the present quarter, Mr. Renard pointed out, and if the development runs true to previous experience, building, automobiles, and cotton yarn and cloth will be the industries which will lead the up-swing.

Pig-iron, steel and retail sales, being slower to recover, will not reflect the improvement in business for some time, he added.

"Anyone with a proper perspective or yardstick for measuring the present and future business situation," he continued, "must necessarily be optimistic. While we have had good reasons during the past eighteen months for being 'bears' or pessimists, almost every condition contributing to this difficult period now compels us to recognize better times ahead.

"International conditions are possibly far from a satisfactory solution, but twelve years after the World War we are much nearer to a recovery from its economic effects than in a similar time following any previous world economic disturbance caused by war. A study of former periods that are comparable will convince us that the financial, economic and political situation was far worse than the corresponding situation today.

"Nationally there is less of a disposition to use artificial economic and politically expedient methods to secure temporarily relief at the expense of permanent correction. The commercial and political 'racketeer' is less likely to succeed and that will bring rewards to those who earn them legitimately."

The tendency to criticize the President and business leaders for their optimistic propaganda a year ago, was described by Mr. Renard as unfair. The statements, he said, served a valuable purpose at the time.

"There is, however, no need for stimulants now," he concluded, "as we should be able to absorb any unfavorable business news without too much shock."

NEWS PRINT FOR NOVEMBER

Production of news print in Canada during November 1930 amounted to 201,703 tons and shipments to 213,673, according to the News Print Service Bureau. Production in the United States was 92,337 tons and shipments 93,631 tons, making a total United States and Canadian news print production of 294,040 tons and shipments of 307,304 tons. During November 24,208 tons of news print were made in Newfoundland and 1,268 tons in Mexico, so that the total North American production for the month amounted to 319,516 tons.

The Canadian mills produced 182,403 tons less in the first eleven months of 1930 than in the first eleven months of 1929, which was a decrease of 7 per cent. The United States output was 91,557 tons or 7 per cent less than for the first eleven months of 1929. Production in Newfoundland was 29,234 tons or 12 per cent more in the first eleven months of 1930 than in 1929 and in Mexico 4,486 tons less, making a total decrease of 249,212 tons or 6 per cent.

During November the Canadian mills operated at 67.6 per cent of rated capacity, United States mills at 68.0 per cent and Newfoundland mills at 105.1 per cent. Stock of news print paper at Canadian mills totalled 40,372 tons at the end of November and at United States mills 31,818 tons, making a combined total of 72,190 tons which was equivalent to 4.2 days' average production.

Platner & Porter-Parsons Div. Starts

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., January 6, 1931.—The Platner & Porter 77 inch Fourdrinier, transferred from the Unionville, Conn., factory to the Mt. Tom mill of the American Writing Paper Company, Inc., began to turn out the famous "Coupon Bond" papers Friday afternoon. The machinery for the greater part was moved from the Unionville plant but the beater tubs are new; and to compensate for the use of the cold artesian well water in that plant a new filter and refrigerating system was constructed in the Parsons Division and the cold pure water brought through pipes in a tunnel underground to the new division, which is to be known as the Platner & Porter-Parsons Division. The refrigerating system has a capacity of 100 gallons a minute reducing temperature from 80 to 40 degrees.

In honor of the occasion the leading American Writing Paper Company, Inc., officials, invited guests and newspaper men made a tour of the plant and the various improvements and changes were pointed out. At the close President Sidney L. Willson gave a little talk stating that eight months ago this mill building was one of the worst looking properties owned by the company. Six weeks ago the removal of the machinery was started and the visitors could see for themselves the present conditions. Incidentally Mr. Willson noted with much satisfaction the feeling at present of friendliness on the part of the community instead of the feeling of hostility that prevailed when he first came to Holyoke.

After he had concluded L. V. Reynolds, comptroller and assistant to the president, called the roll of the department heads that had had charge of the building and installation and each was greeted personally and congratulated by Mr. Willson; who at the close also congratulated Mr. Reynolds saying it was one of his ideas. In similar fashion the various contractors or their representatives were greeted and luncheon was served.

The present mill was formerly the Mt. Tom Division and owned before the American Writing Paper Company organization by the Parsons Paper Company. For several years it was used as the laboratory of the American Company, being one of the largest and most complete technical laboratories for paper mills in the country. About two years ago the laboratory was removed to the Wauregan Division.

The installation of the Platner & Porter machine and machinery in this mill marks the close of the $2,500,000 renovation and improvements carried on for the past few years. Chief among them previous to this was the combining of the Beebe & Holbrook, Wauregan and Massasoit mills into one division; and the supplanting of the "giant" machine at the Gill division with a smaller and more satisfactory machine.

It is understood that the company is also to sell back to the Holyoke Water Power Company two large mill sites with water rights that it has carried along without use for the past 25 or 30 years.

Russian Pulpwood Movement

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., December 27, 1930.—This city is already becoming famous as a new world seaport and now, with the Deeper Hudson Channel virtually completed, it is agreed that industrial expansion is ahead. That the city should obtain its baptism as a world port through pulpwood shipments nearly 6,000 miles away serves to disclose the meaning of the term "world trade." The first cargo from Archangel, Russia, was delivered at New York City last summer and since then eighteen ships loaded with pulpwood for Northern New York paper mills have passed through the White Sea and the Northern Atlantic in order to get the shipments to this city on contract. It is claimed now that if the Deeper Hudson project had been completed last summer it would have been possible for these ocean liners to have sailed directly to the local port terminal.

It is also remarkable that the city's initiation as a world port forms a historical connection with the voyage of Henry Hudson up the river to this city nearly 300 years ago inasmuch as the pulpwood vessels are following the same course he took when he headed for the American Coast.

More than 75,000 tons of the pulpwood has already arrived here from Archangel and the contract made with the International Paper Company calls for delivery of about 200,000 additional tons. More than 12,000 cars will be used in moving the shipments from the port docks to the mills of the company at Corinth, Glens Falls and Fort Edward. Barges are being used in relaying the cargoes to this city from New York Harbor under contract. The size of the movement can be judged in the records at the local terminal which shows that about 75 freight cars have been loaded daily at the local port terminal since last July, which incidentally furnishes steady work to about 100 Stevedores. At noon each day the long string of loaded freight cars are hauled from the dock front to the main line of the Delaware and Hudson prior to starting the journey to the paper mills. Port traffic authorities claim that about every working day for another month at least will be required in handling the shipments. The advantage of the local port terminal to this district has already been clearly shown in handling this huge movement of foreign pulpwood, inasmuch as paper mills in many instances are running on better schedules, with a resultant increase in community employment.

The New Year

[FROM OUR REGULAR CORRESPONDENT]

SPRINGFIELD, Mass., January 6, 1931.—Col. B. A. Franklin, well known in the paper industry through his connection with the Strathmore Paper Company and president of the Associated Industries of Massachusetts, is author of the following:

A New Year—1931—is about to enter.

Let's all rise and give it a hearty welcome and wish it success.

No year for a long time has been so badly needed as this New Year. The old one is all fagged out and down at the heel. It has left us, and indeed the whole world, in an unhappy condition, mentally, morally, and financially. Whoever is to blame, the Old Year is going to have a bad reputation for a long while.

But if the New Year is going to have a better career, it's only fair that everybody lend it a helping hand.

And for Business, here are a few Resolutions:—

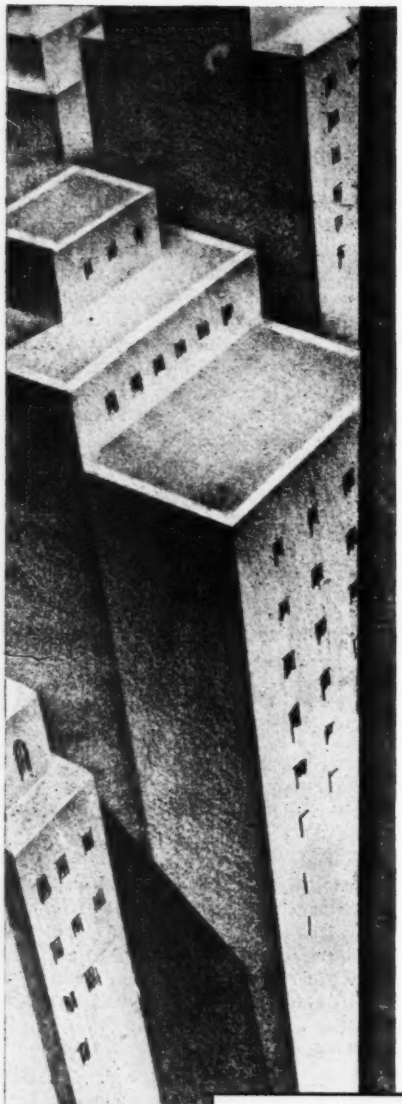
Buy what we need.
Cease speculation, or lending money to encourage it.
Study production demand before over-producing supply.
Try to introduce permanence into employment.
Bring products up-to-date in style, utility, and economy.
Introduce most modern machinery and equipment.
Introduce most modern methods of production and management.
Support those associations, trade, national, state, or local working in a forward-looking way for the common good.
Consider the other fellow—competitor or worker.
Co-operate for more permanent prosperity.

The Associated Industries of Massachusetts wishes for you in the New Year, 1931, personally and corporatively, happiness, luck, health and success.

Jaite Co. Adds Machinery at St. Helens

PORTLAND, Ore., December 27, 1930.—The Jaite company which operates a plant at St. Helens, for the manufacture of paper cement bags, is installing two large new machines, one a ten-ton press for printing and a tuber which will speed up production.

The machinery which arrived from the east the last week in December, cost $40,000 and will be in operation by the middle of January.



A Structure can be no stronger than its FOUNDATIONS

By CARL R. MILLER

No. 6 in a series of advertisements describing the position of The Mathieson Alkali Works in the chemical industry

WHERE plodding oxen once came for a cart of precious salt...today a modern Mathieson plant produces tons of useful chemicals needed for Industry's mills and factories. Near mighty Niagara, unharnessed for ages...today a Mathieson plant extracts power from the falls and elements from air and minerals, transforming them into chemical products that protect the lives of millions...products which cost no more yet serve better.

These modern miracles would have been impossible without strong foundations of Resources, Research and Service...foundations laid in the pioneer days of the chemical industry. That is why Mathieson chemicals represent quality born of seasoned experience...that is also why Mathieson service assures satisfaction to every purchaser.

A list of available literature describing the many uses of Mathieson chemicals will be sent on request.

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Soda Ash...Caustic Soda...Bicarbonate of Soda...Liquid Chlorine...HTH (Hypochlorite)...Ammonia, Anhydrous and Aqua...Bleaching Powder...Sulphur Dichloride...PURITE (Fused Soda Ash)

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

For photostatic copies of articles appearing in the Abstract Section, address the chairman of the Abstracts Committee, Dr. Clarence J. West, National Research Council, 21st and B Streets, Washington, D. C. The charge for this service is 25 cents per page. Copies of United States patents may be obtained from the U. S. Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Digesters

Safety Valve for Digesters. C. Becker, Mainz, Germany. Wochbl. Papierfabr. 61, No. 11, 346 (March 15, 1930).—The value consists of a "U" tube filled with a certain quantity of mercury which is blown out when the pressure exceeds a determined amount. Description of other types.—J.F.O.

Heat from Digestors and the Possibility of its Economic Use in Pulp Mills. W. Schmid, Wartha in Schlesien. Papier-Fabr. 28, No. 9 (March 2, 1930).—System and results explained.—J.F.O.

Circulation System for Pulp Digesters. George A. Richter assignor to Brown Co. U. S. pat. 1,735,015 (Nov. 12,1929).—A screen is placed in the bottom of the digester. Liquor is pumped out of the bottom of the digester and forced into a heater where the liquor is heated indirectly. Part of the heated liquid is recirculated through the heater by means of a pump running at a higher speed than the first pump, and the remainder of the liquor is delivered into the digester at or near the top.—A.P.-C.

Arrangement for Vertical Sulphate Digestors with Forced Circulation. E. Morterud, Torderoed, Norway. Norwegian pat. 47,-005 (Jan. 25, 1929).—The digestor is provided with holes in the middle a short distance apart, through which extend circular pipes placed in the digestors. Each of these pipes are provided with at least two parts loosely fitting into each other and fastened at only one point in the digestor.—J.F.O.

Utilization of Waste Steam for Evaporation Apparatus in Pulp Mills. Einar Morterud. U. S. pat. 1,771,810 (July 29, 1930).—Waste steam from continuously operating evaporators in a pulp mill is absorbed in a suitable liquid, and the heated liquid is used for preheating the pulp in the digestors.—A.P.-C.

Arrangement for the Direct Heating of Vertical Digesters. E. Morterud, Torderoed, Norway. Norwegian pat. 47,043 (Feb. 9, 1929).—The introducing of steam occurs through a series of inlets, arranged separately from one another and placed in the cylindrical middle part of the digester.—J.F.O.

Process for the Utilization of Exhaust Steam from Continuous Operating Evaporators in Pulp Mills. Ing. E. Morterud, Torderoed, Norway. Norwegian pat. 47,193 (Nov. 28, 1927).—The exhaust steam is led into a quantity of liquid which is used for the pre-heating of the chips in the digester.—J.F.O.

Apparatus for Charging Pulp Digesters. Sjune Svensson. U. S. pat. 1,768,804, (July 1, 1930).—The device comprises two concentric pipes, spaced from each other and between which is an annular steam-supply opening. The pipes are adapted to be placed in the centre of the opening of the digester during charging, the free end of the inner pipe projecting beyond the outer pipe and being provided with side openings. The free end of the inner pipe is closed and steam issues simultaneously from both pipes to form a conical sheet by which the chips are packed in the digester.—A.P.-C.

Method of Charging Pulp Digesters. P. A. Fresk. Belg. pat. 363,651, (Oct. 31, 1929).—The chips are charged in the digester by means of a suitable current of fluid (steam or gas), which is made to circulate in a closed cycle from the blower to the digester and back through the blower.—A.P.-C.

Device for the Filling of Comminuted Wood and Similar Substances in a Pulp Digester. Tryggve Ferdinand Christiansen, Helsingfors, Finland. German pat. 491,166 (Sept. 6, 1928).—The device possesses a distributing part, arranged projecting perpendicular on the lower end of a revolving shaft in the longitudinal direction of the digester, placed through the digester throat.—J.F.O.

Arrangement on Apparatus used for the Filling of Pulp Digesters with Wood Under the Aid of Air or Steam. P. A. Fresk, Robertsfors, Sweden. Swedish pat. 68,833 (Jan. 19, 1926).—Two funnel shaped parts lying within each other thus forming a ring shaped space through which the air or steam is so introduced past guiding surfaces made groove shaped, that the air or steam mixture penetrates into the material to be filled and thus increases its velocity.—J.F.O.

Arrangement for the Filling of Pulp Digestors with the Aid of a Gas or Steam Mixture. P. A. Fresk, Robertsfors, Sweden. Swedish pat. 68,933 (Dec. 21, 1926).—The space between the funnel is so arranged that the wood chips are given a swirling motion.—J.F.O.

Process for the Simultaneous Filling and Emptying of Circular Pulp Blow Pits by the use of a Stirrer Arrangement Moving up and Down and Provided with Oblique Scoops for the Uniform Removal of the Stock. Maschinenfabrik Hartman Offenbach, a. M. Germany. German pat. 489,331 (April 26, 1928).

The cellulose pulp entering the circular blow pit is first spread out evenly by the stirrer arrangement. After suitable dewatering by changing the direction of rotation of the stirrer the pulp is raised up in uniform layers and driven through a pipe arranged vertically to the blow pit from which the pulp runs continuously to the conveyor for further treatment.—J.F.O.

Pulp Treatment

Treatment of Pulp. Levis M. Booth. Can. pat. 300,661 (June 3, 1930).—Partially washed or unwashed pulp which has been digested by an alkaline process has added thereto ferric sulphate, ferric chloride and chlorine.—A.P.-C.

Treatment of Pulp. Levis M. Booth. Can. pat. 300,663, (June 3, 1930).—In the manufacture of paper or paperboard from a pulp that has been digested by an alkaline process, the usual washing process is dispensed with or reduced and the pulp is treated with chlorine.—A.P.-C.

Reducing the Viscosity of Cellulose Fiber. George A. Richter assignor to Brown Co. Can. 300,945 (June 10, 1930).—Cellulose fiber is suspended in alkaline solution containing iron compounds and is treated with an atmosphere of oxygenating gas under pressure, and the product is treated with oxalic acid solution to remove the iron stains.—A.P.-C.

Paper. Carl Weisshuhn & Söhne. Fr. pat. 674,807 (May 10, 1929).—In the manufacture of paper pulp from wood and other materials, the materials are first dried as much as possible and then impregnated with reducing solutions to prevent oxidation in the subsequent treatment.—A.P.-C.

Process for Purifying Wood Pulp. A Thiriet. Eng. pat. 318,868 (March 8, 1928).—Wood pulp prepared by the soda or sulphite process is purified to obtain a product containing 97 to 98% of alpha-cellulose, by washing with water in jets as it flows down an inclined gauze, and further washing in suspension in water free from alkaline-earth salts (which washing may be preceded by washing with dilute acid and with alkali). An arrangement of apparatus and various details of operation are described. Soda pulp may be subjected to a thorough oxidation before it is treated with alkali, and as the treatment progresses the material is subjected to liquid of greater degrees of purity as regards the presence of alkaline-earth compounds.—A.P.-C.

Pulp for Paper Manufacture. Levis M. Booth. U. S. pat. 1,761,069 (June 3, 1930).—Partially washed or unwashed pulp such as that formed from wood or straw and which has been digested by an alkaline process is treated with a coagulating metallic salt such as ferrous sulphate, ferric sulphate, or aluminum sulphate, and with chlorine in order to neutralize alkali and conserve the material.—A.P.-C.

Machinery

Process and Arrangement for the Barking of Wood, Wood Refuse and Similar Materials. E. A. I. Ormell, Kramfors, Sweden. Swedish pat. 68,393 (April 27, 1928).—The material to be barked is brought into a rotating drum in which iron rods lie loose parallel to the axis of the drum, (in the presence or exclusion of water) rubbing against the material to be barked, thus causing barking on all sides.—J.F.O.

Knife Head for Barking Machines. Kunt Robert Johan Lagus, Abo, Finland. German pat. 493,221 Kl. 38i Gr. 1 (June 25, 1927).—On one end of the knife head, a piece is fastened to a revolving shaft and connected to a number of cutting edges having teeth. On these teeth, the cutting edges are placed so they can be regulated. The other end of the knife head is open so that the bark and refuse can easily fall away.—J.F.O.

Eccentric, Especially for Knotters, Shaking Machines, etc. Maschinenfabrik zum Bruderhaus, Reutlingen, Germany. German pat. 492,476. Kl. 55d Gr. 5 (Dec. 24, 1927).—The invention concerns an eccentric whose stroke is changed through two eccentric regulatable parts arranged in relation to each other. The setting follows through a rotating wheel which (itself) rolls on a solid cog wheel.—J.F.O.

Machine for Cleaning Paper Rags. August Aeldert. U. S. pat. 1,770,505 (July 15, 1930).—A casing is mounted in a housing. The upper portion of the casing is solid and the lower portion is perforated. A conical rotating perforated drum provided with teeth on the outside is mounted inside the casing. The rags are introduced between the drum and casing through a hopper located at the smaller end of the drum. A fan is mounted on one end of the housing to create suction on the inside of the drum and the outside of the casing.—A.P.-C.

Preliminary Rolls for Crushing the Leaves Containing Meats for the Fiber Recovery Machine. Firma Fr. Haake, Berlin, Germany. German pat. 493,133 (May 20, 1928).—Two successive conveyor devices for transporting the leaves are so arranged that the material on each are mixed together.—J.F.O.

Crushing Machine for the Stalks of Plants Containing Textile Fibers. J. Leterme, Ypres, Belgium & Brus Forges, France. German pat. 493,134 Kl. 29a Gr. 2 (Feb. 15, 1928). Addition to pat. 458,271.—In addition to the previous patent, the feed conveyor is omitted and replaced by a deflection device.—J.F.O.

Stock Concentrator. R. M. Wendel, Aigion, Greece. Finnish pat. 12,592 (Dec. 12, 1927).—The apparatus consists principally of a conical drum revolving around its vertical axis, whose lower part dips into the stock to be thickened, the stock is there taken up and led along the walls to the upper part by centrifugal action where a simultaneous separation of the liquid and the stock contained therein takes place. The liquid is conducted to the overflow of the drum, the stock being removed a little below the edge of the drum, through various openings and led away through pipes. The half concentrated stock is returned to the lower part of the drum. By displacement of the pipe, serving as the filtrate outlet, in the direction toward the center of the drum, the degree of thickening of the filtrate can be changed.—J.F.O.

Stock Consistency Regulator for Ground Wood Pulp or Paper Stock. Oscar Olsson & Oeistein Meidell, Halden, Norway. Norwegian pat. 47,282 (May 18, 1928).—A connection is made to the pressure line of the stock system, through which the stock is led to a small turbine. The variation of consistency in the pressure line effects the speed of the turbine. The turbine is connected to a regulator whose impulses received from the turbine acts on a valve or a float, by whose opening or closing, water is added to the stock chest, thereby holding the stock consistency constant.—J.F.O.

Automatic Regulator for the Stock Inlet on a Board Machine. Siguard Caspersen, Lier, Norway. Norwegian pat. 47,349 (June 19, 1926).—The regulation of the stock inlet is carried out through a sliding gate which is influenced by one or more floats submerged in the stock trough, the motion being transmitted by gears and a rod.—J.F.O.

Sand Catcher with Cross Section Troughs for Paper and Board Machines. Links-Hofman-Busch-Werke Akt. Ges. Warmbrun, Germany. German pat. 491,046 (Jan. 14, 1925).—Arrangements are provided by which the sand catcher is given a shaking motion during operation directed upwards and forwards.—J.F.O.

Arrangement on Paper Machines for Stretching Felts.—A. G. Brown, Boveri & Cie, Baden Switzerland. German pat. 492,712 (Sept. 9, 1928).—The device is characterized in that for each felt of the dryer section, a stretching device is provided driven by a motor independent from other parts of the machine. The motor constantly holds the felt in the desired position.—J.F.O.

Process and Arrangement for the Production of Paper on a Fourdrinier Machine. R. Wendel, Stockholm, Sweden. Swedish pat. 68,936 (Oct. 6, 1926).—In order to hasten the dewatering process on the wire, the stock is forced into a swirling motion just after its entrance on the wire by means of a special eccentric.—J.F.O.

White Papers From Southern Pines*

II—A Modified Bleaching Process for Easy-Bleaching Sulphate Pulps

By C. E. Curran[1], R. H. Doughty[1], and M. W. Bray[1]

Synopsis

A series of investigations at the Forest Products Laboratory to determine the most suitable bleaching process for the treatment of easy-bleaching kraft pulp prepared from southern pine is reported. A two-stage process, using chlorine water in the first stage and bleach powder in the second stage, gave the best results as regards bleach economy, color, strength, and chemical properties of the bleached pulps. The optimum conditions for the use of this process on the special pulps studied were very sharply defined. It is believed that similar optimum conditions may be worked out for two-stage hypochlorite bleaching.

Introduction

The possibility of producing from the southern pines a pulp that combines physical strength and ease of bleaching has already been reported[2, 3, 4]. The pulp was produced by a modification of the sulphate process developed at the Forest Products Laboratory in which a higher ratio of chemical to wood than normally employed was used at a somewhat lower than usual concentration. In the reports just mentioned it was stated that a bleaching process especially suitable for the particular pulp had been developed, and data upon the properties of white papers made from the pines by the combined pulping and bleaching processes were presented.

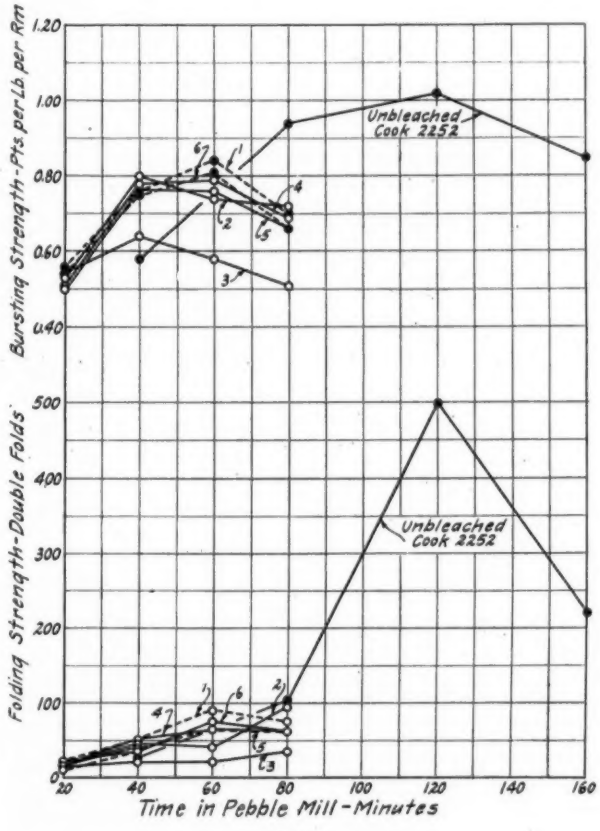

FIG. 1

Strength development curves of pulps bleached with hypochlorite alone. Numbers on curves refer to Table 2.

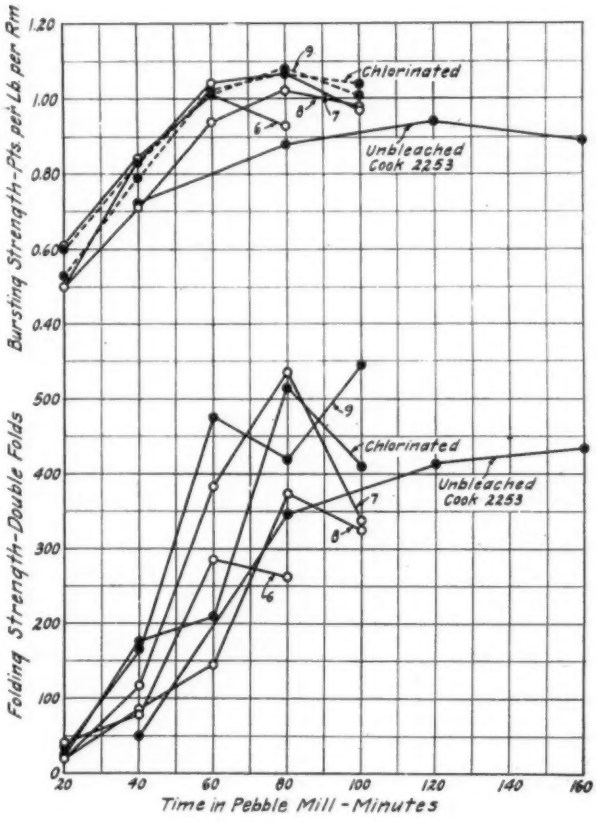

FIG. 2

Strength development curves of chlorinated and bleached pulp. Chlorination No. 1. Numbers on curves refer to Table 4.

The investigations leading to the establishment of the special bleaching process are described here. The early work with the pulping process had shown that unbleached pulp testing better than a point per pound per ream in bursting strength and bleachable to a satisfactory white color with 20 to 25 per cent standard bleach powder could be produced without difficulty. There was, however, a serious loss of strength in bleaching the pulp. Attention was therefore directed to the bleaching procedure, with the object of determining means by which the degradation of the pulp during bleaching could be reduced and the bleach consumption further lowered.

Possible Bleaching Methods

The bleaching operation has long been the object of study by numerous workers, and many suggestions for its modification have

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* Presented at the fall meeting of TAPPI, Erie, Pa., Sept. 3-5, 1930.

[1] Senior chemist, asst. engineer, and chemist, respectively. Forest Products Laboratory, Madison, Wis.

[2] Bray, M. W., and Curran, C. E., Paper presented at the TAPPI meeting, New York City, Feb. 18-23, 1929. To be published.

[3] Curran, C. E., and Bray, M. W., Ind. Eng. Chem. *22* 835-6 (1930).

[4] Curran, C. E., Paper Trade *90*, No. 30, 49-53 (Jan. 16, 1930).

been made. These suggestions may be grouped in three general classifications as processes involving (1) extraction of the pulp, previous to, or during bleaching, with neutral (non-oxidizing) chemicals, (2) division of the process into stages, and (3) use of bleaching agents other than calcium hypochlorite solution.

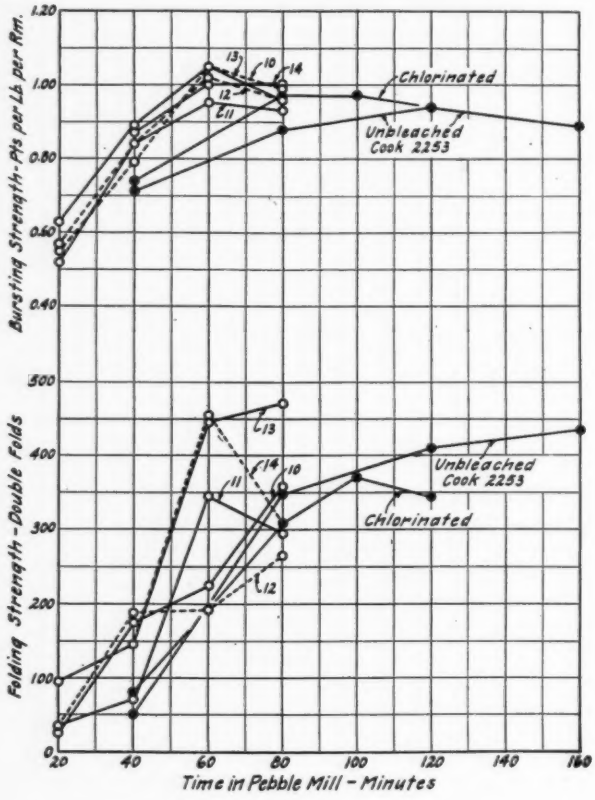


FIG. 3

Strength development curves of chlorinated and bleached pulp. Chlorination No. 2. Numbers on curves refer to Table 4.

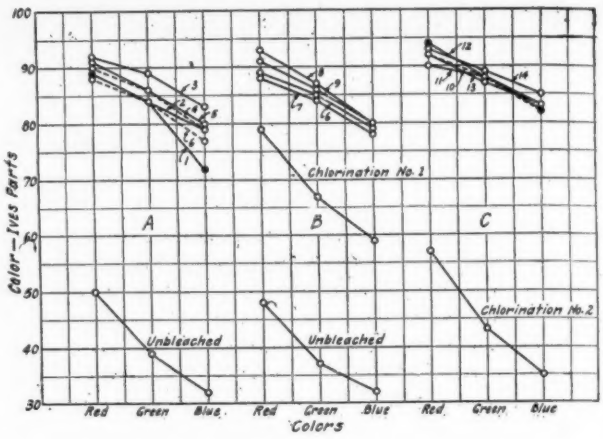


FIG. 4

Color Analysis of Pulps. A—Hypochlorite bleached pulps, Table 2, Fig. 1. B—Chlorinated and bleached pulps, Tables 3 and 4, Fig. 2. C—Chlorinated and bleached pulps, Tables 3 and 4, Fig. 3.

Two-stage bleaching has been recommended by Wells[5] as especially valuable for treating pulps made from southern woods. The process has been studied by Rys[6] and others who have reported favorably upon it.

Recently the multi-stage method of bleaching has gained considerable headway and is now in extensive use commercially. If conducted under proper conditions it is said to result not only in improved pulp quality but also in considerable reduction in the consumption of bleaching agent.

The view that ordinary bleaching is in fact a combination of two effects, a chlorination which completes the delignification begun in the pulp digester, and a decolorizing oxidation, has been suggested by Curran and Baird[7] and more closely investigated by Rys[6]. It appears that not only is bleaching agent consumed in oxidizing the undissolved components, but that substances already dissolved by chlorination or partial oxidation also consume con-

[5] Wells, S. D., Paper *27*, No. 12, 16-21 (Nov. 24, 1920).
[6] Rys, L. Paper Trade J. *85*, No. 18, 61-7 (Nov. 3, 1927).
[7] Curran, C. E., and Baird, P. K., Paper Trade J. *79*, No. 1, 56-58, (July 3, 1924).

TABLE 1.—PULPING, BLEACHABILITY AND STRENGTH DATA ON LOBLOLLY PINE SULPHATE PULPS

Cook No.	Pulping: Weight of wood used — Point, pounds	Oven-dry, pounds	Cooking liquor: Concentration — NaOH gm./liter	Na_2S gm./liter	Per 100 pounds oven-dry chips — NaOH pounds	Na_2S pounds	Volume gals.	Steam: Maximum temperature, °C.	Maximum pressure, lbs./sq. in.	Pressure increase period, min.	Duration at Maximum pressure, min.	Black liquor, ratio combined to total alkali, per cent	Yield based on oven-dry weight of chips charged — Crude pulp, per cent	Screenings, per cent	Bleachability Color: Bleach ratio, per cent	Red, Ives parts	Green, Ives parts	Blue, Ives parts	Strength Development: Time in pebble mill, Minutes	Weight per ream 24 × 36—500 pounds	Bursting strength factor, pts./lb./ream	Tearing strength factor, gms./lb./ream	Folding endurance, double folds	Tensile strength, meters breaking length	per cent	Per cent
2252	104.0	90.0	52.5	17.5	25.65	8.55	58.6	170	105	105	135	51.8	41.40	0.30	0.0	50	39	34	40	45.60	0.58	2.58	26	2698	7.37
															15.0	84	77	65	80	46.28	0.94	2.60	104	3603	9.50
															17.5	88	81	72	120	50.71	1.02	2.16	503	3988	9.87
															20.0	90	84	78	160	51.05	0.85	1.79	220	4264	7.37
															22.5	92	86	79							
															25.0	92	86	82							
2253	104.0	90.0	52.5	17.5	25.65	8.55	58.6	170	107	90	150	56.6	39.87	0.07	0.0	48	37	32	40	51.01	0.62	3.05	51	3155	10.12
															17.5	90	79	68	80	53.43	0.88	3.19	344	4432	9.75
															20.0	90	82	74	120	53.09	0.94	2.58	413	4382	10.87
															22.5	92	85	77	160	56.16	0.89	2.31	433	4305	9.75
															25.0	92	86	79							
2257	100.5	90.0	52.5	17.5	25.65	8.55	58.6	172	110	90	150	53.9	40.67	0.07	0	41	38	33	40	50.37	0.62	3.26	38	2968	7.75
2258	100.6	90.0	52.5	17.5	25.65	8.55	58.6	171	110	90	150	52.3			17.5	91	82	70	80	53.09	0.96	3.16	373	3936	11.00
															20.0	88	81	73	120	51.73	1.00	2.61	578	3936	10.87
															22.5	96	90	81	160	53.09	0.97	2.28	652	4241	12.37
															25.0	94	88	82							
2260	103.0	90.0	52.5	17.5	25.65	8.55	58.6	171	110	90	150	55.4	40.87	0.07	0	43	39	33	40	51.39	0.54	3.61	38	2756	9.12
															17.5	84	78	67	80	48.67	0.90	3.86	419	4115	14.12
															20.0	85	81	68	120	47.65	0.97	3.10	226	3537	11.00
															22.5	86	83	75	160	48.67	0.87	2.84	398	3911	15.12
															25.0	87	83	74							

TABLE 2.—BLEACHING LOBLOLLY PINE PULPS WITH HYPOCHLORITE, AND DATA ON THE BLEACHED PULPS

Cook and Bleach No.	Preliminary extraction: Chemical used, kind—amount	Preliminary extraction: Consistence, per cent	Preliminary extraction: Temperature, deg. C.	First stage bleaching: Time, minutes	First stage bleaching: Consistence, per cent	First stage bleaching: Temperature, deg. C.	First stage bleaching: Bleach ratio, per cent	Second extraction: Time, minutes	Second extraction: Chemical used, kind—amount	Second extraction: Consistence, per cent	Second extraction: Temperature, deg. C.	Second stage bleaching: Time, minutes	Second stage bleaching: Consistence, per cent	Second stage bleaching: Temperature, deg. C.	Second stage bleaching: Bleach ratio, per cent	Time, minutes	Total bleaching time, minutes	Total bleaching ratio, per cent	First stage Color: Red, Ives parts	First stage Color: Green, Ives parts	First stage Color: Blue, Ives parts	Final Color: Red, Ives parts	Final Color: Green, Ives parts	Final Color: Blue, Ives parts	First stage Chemical data: Alpha cellulose, per cent	First stage Chemical data: Copper number	First stage Chemical data: 1% NaOH solubl., per cent	Final Chemical data: Alpha cellulose, per cent	Final Chemical data: Copper number	Final Chemical data: 1% NaOH solubl., per cent	Strength development: Time in pebble mill, minutes	Strength development: Weight per ream 24x36—500, pounds	Strength development: Bursting strength factor, pts./lb./ream	Strength development: Tearing strength factor, gms./lb./ream	Strength development: Folding endurance, double folds	Strength development: Tensile strength, meters breaking length	Strength development: Stretch, per cent
2252-1	Not extracted							No second stage treatment given								135	135	20	..	..	..	..	..	..	..	..	..	..	..	..	..	20	51.39	0.56	2.21	18	2520	7.25
																														40	48.33	0.76	2.05	51	3904	7.87
																														60	51.39	0.84	1.98	91	3721	8.37
																														80	44.92	0.70	1.66	76	3502	9.00
-2	Acetic acid -1 per cent	2	Approx. 20	15	5	40	20	180	No. second stage treatment given							160	160	20	..	..	..	..	..	..	..	..	..	..	..	..	..	20	53.77	0.53	2.31	19	2551	6.50
																														40	48.33	0.80	1.77	47	3670	7.25
																														60	45.26	0.74	1.54	43	3277	6.62
																														80	47.65	0.72	1.48	97	3449	8.50
-3	Sulphite cooking liquor containing 2 per cent SO_2 on pulp	2	Approx. 20	15	5	40	15	100	NaOH -2 per cent	2	Approx. 20	15	5	40	3	180	295	20	87	79	68	92	89	83	87.7	2.67	6.01	77.1	5.40	12.84	20	49.01	0.54	1.66	16	2995	7.12
																														40	49.69	0.64	1.35	19	3562	6.12
																														60	49.01	0.58	1.14	17	3924	4.50
																														80	47.65	0.51	0.84	37	3921	3.62
-4	Not extracted			5	40	12	55	NaOH -2 per cent	2	Approx. 20	15	5	40	3	135	205	15	87	78	69	91	86	80	86.9	3.04	6.98	83.6	4.30	9.84	20	51.05	0.50	1.77	9	2781	6.50
																														40	51.73	0.76	1.70	43	3482	9.00
																														60	52.41	0.76	1.57	62	3680	7.12
																														80	50.03	0.66	1.36	67	3544	5.12
-5	Not extracted			5	40	12	70	Not extracted																													
-6	Soaked in water at room temperature for 18 hours, heated to 43° C. and washed out.			5	40	15	90	No second stage treatment given								90	90	15	..	..	..	..	..	..	..	..	..	..	..	..	..	20	49.01	0.54	1.66	18	2655	7.25
																														40	50.03	0.75	1.58	34	4085	7.37
																														60	53.43	0.81	1.57	76	3715	7.87
																														80	52.75	0.66	1.23	63	4211	5.00

siderable further quantities. Furthermore, it is known (from the favorable results of the Cross and Bevan method of cellulose estimation) that chlorination alone has no serious degrading effect on cellulose. Consequently it seems logical to assume that in bleaching pulps, especially those highly lignified or otherwise colored, the desired bleaching can be obtained with the least consumption of bleaching agent and the least pulp degradation, by using a chlorination treatment followed by a finishing hypochlorite treatment after any materials rendered soluble by the chlorination have been thoroughly removed by washing. Such a precedure would be similar to the Cross and Bevan method of cellulose estimation, or the commercial adaptations of this method by Pomilio in Italy and DeVains in Belgium and France.

Such a method was successfully applied to sulphite pulp by Rys[8] at about the same time the work here reported was in progress. Earlier, Heuser and Neithammer[9] had obtained what they considered as very satisfactory results with spruce sulphite pulps, and Michael-Jaffard[10] had applied the same method in the bleaching of pulps from Bordeaux pine. Using an alkaline extraction of the chlorinated material, Michael-Jaffard was able to produce a relatively strong pulp of "snowy whiteness" from an otherwise unbleachable sulphate pulp. A similar procedure with flax straw[11] resulted in a very weak pulp that hydrated rapidly in the beater. This behavior was considered as due primarily to the fact that the flax pulps, which contained 12 to 15 per cent lignin, were subjected to a very drastic combined treatment of chlorination, alkaline boil, and hypochlorite bleaching.

Experimental Methods and Apparatus

The methods of procedure and apparatus used in the experimental work outlined in this report were essentially those described in previous papers dealing with the bleaching of sulphite pulp[5] and with the pulping of flax straw[11]. The bleaching apparatus was a rotating barrel, with baffles for thoroughly mixing the charge, and with attachments for temperature control. The chlorination apparatus consisted of a rotating drum of about 120 gallons capacity into which measured quantities of chlorine water of known strength could be charged from a mixing apparatus.

Pebble mill tests for strength, and chemical tests for alpha-cellulose, solubility in 1 per cent sodium hydroxide solution, and copper number, as well as color determinations using the Ives tint photometer, were made according to the standard Laboratory procedures. Since the primary object of the work was to produce a pulp of good color, a standard of 80 parts blue, 90 parts red, with green intermediate, was selected and the work was directed toward the production of this color with the lowest chemical consumption and the least pulp degradation possible.

Experimental Materials

The bleaching agents used were chlorine water, prepared from commercial liquid chlorine, and bleach liquor prepared from commercial bleaching powder. The active bleaching agent is reported either in terms of percentage of chlorine or percentage of standard bleaching powder (containing 35 per cent available chlorine) based on the pulp used, or in percentage of the one-stage bleachability value of the pulp.

For the experiments, herein recorded, 5 cooks were made in the semi-commercial digester, yielding in all about 200 pounds of pulp. To insure freshness of the pulps

[8] Rys, L., Paper Trade J. *88*, No. 1, 65-72 (Jan. 2, 1929).
[9] Papier-Fabr. *21*, 52-60 (1922); C. A. *17*, 3918 (1923).
[10] Paper *35*, 314-7 (1924); C. A. *18*, 1905 (1924).
[11] Schafer, E. R., and Peterson, C. E., Paper Trade J. *87* No. 15, 41-6 (Oct. 18, 1928).

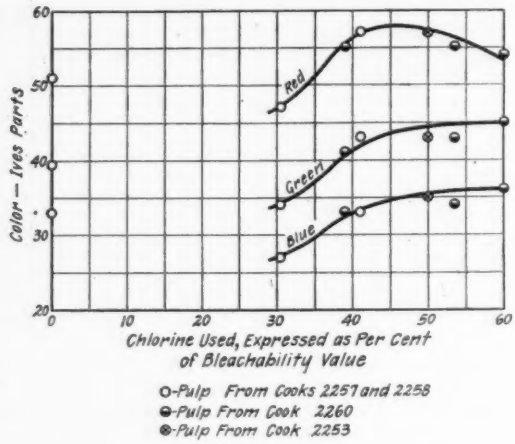


FIG. 5

Effect of degree of chlorination on the color of the chlorinated pulps

the cooks were made at intervals as the pulp was needed.

The cooking conditions employed were those already reported[2], [3], [4] for the production of a comparatively easy-bleaching sulphate pulp. Data on conditions of digestion, yield and pulp properties are set for in Table 1. The pulps from the several cooks were utilized as follows:

Cook No.	Purpose for which used
2252	Hypochlorite bleaching
2253	First chlorination studies
2257 and 2258	Thoroughly mixed and used for detailed studies of the chlorination process
2260	Further chlorination studies

Presentation of Results

A series of six experiments designed to show the effect of certain factors in one- and two-stage hypochlorite bleaching are presented in Table 2 and Figs. 1 and 4. The variables of consistence and temperature were not studied here, since their effects were already well known from work on sulphite pulp[12].

[12] Curran, C. E., and Baird, P. K., Paper Trade J. *79*, No. 11, 45-7, (Sept. 11, 1924); ibid. *80*, No. 16, 51-3 (Apr. 16, 1925).
Baird, P. K., Paper Trade J. *87*, No. 22, 39-44 (Nov. 29, 1928).
Baird, P. K., and Doughty, R. H., Paper Trade J. *90*, No. 22, 179-83 (Feb. 20, 1930).

The conditions used and results obtained with simple chlorination are shown in Table 3, while the results of further bleaching studies on these chlorinated pulps are presented in the remaining tables and figures.

Table 4 and Figs. 2, 3, and 4 show the results of the first series of experiments which established the superiority of the chlorine treatment over simple hypochlorite bleaching. Table 5 and Figs. 5, 6, 7, 8, and 9 show the results of the more detailed study of the chlorination process. Since the apparatus available was not suitable for a study of the consistence effect in chlorination, and since an attempt to study a wide range of temperature seemed unnecessary, the only variable investigated was that of the partition of bleaching agent between the two stages. The chlorination work was conducted on several pulps of somewhat different bleach requirements. To permit a more accurate comparison, therefore, much of the bleach consumption data has been converted to the basis of percentage of the bleachability value of the particular pulp used.

The color analysis of the pulps is reported in so-called "Ives parts." According to this system the lowest reading on the Ives instrument (parts blue in this case) is considered as a measure of the whiteness of the pulp. However, while a pulp with 80 parts each of blue, green, and red will appear as a good white, one with 80 parts blue, 85 green, and 90 red or some such combination, will appear to have a very slightly yellowish tint.

Discussion of Results

Bleaching with Hypochlorite Alone

The experiments with variations of the hypochlorite bleaching process served to show that extraction of the pulp with chemical agents such as dilute acids or alkalies, or with water, is of doubtful value so far as the bleaching of this particular pulp is concerned. Admittedly, there are numerous possibilities in connection with this method of treatment which have not yet been studied. The only advantage shown in the present work, however, was a slight decrease in bleach requirement, not sufficient to repay the cost of the extraction treatment. The best results from an economic standpoint were obtained when the pulp was washed with water as thoroughly as possible previous to bleaching.

Two-stage hypochlorite bleaching did result in a marked reduction in the consumption of bleaching agent. Thus the pulp from test No. 5 (15 per cent powder, two-stage) was much

TABLE 3.—CHLORINATING LOBLOLLY PINE PULPS, AND DATA ON THE CHLORINATED PULPS

					Chlorine consumed					Color			Chemical data			Strength development						
Cook No.	Chlorination No.	Oven-dry weight of pulp charged, pounds	Total water charged, pounds	Consistence, per cent	Amount, pounds	Basis pulp, per cent	Calculated as bleach powder, basis pulp, per cent	Time, hours	Temperature, deg. C.	Red, Ives parts	Green, Ives parts	Blue, Ives parts	Alpha cellulose, per cent	Copper number	1% NaOH soluble, per cent	Time in pebble mill, min.	Weight per ream 24 x 36—500, pounds.	Bursting strength factor, pts./lb./ream	Tearing strength factor, gms./lb./ream	Folding endurance, double folds	Tensile strength, meters breaking length	Stretch, per cent
2253	1	12.0	750	1.6	0.48	4.00	11.4	5	Approx. 20	79	67	59	90.01	2.11	4.47	20	48.67	0.53	2.74	25	2625	6.60
																40	49.01	0.79	3.43	173	4105	8.20
																60	50.71	1.02	3.27	207	4055	8.60
																80	51.05	1.07	3.21	518	4960	12.20
																100	49.35	1.04	2.35	412	4015	10.70
	2	12.0	750	1.6	0.52	4.30	12.4	9	Approx. 20	57	43	35	90.29	1.56	4.87	40	45.70	0.74	3.01	83	3408	8.12
																80	51.05	0.97	2.73	309	4515	11.25
																100	51.39	0.98	2.69	367	4288	9.87
																120	50.03	0.94	2.49	344	4458	9.75
2257 and 2258 mixed	3	15.0	700	2.1	0.364	2.43	6.9	2.75	Approx. 20	47	34	27	92.40	1.71	2.60	40	49.69	0.59	3.08	73	3026	9.00
																80	54.11	0.88	2.96	270	3919	11.75
																120	53.77	0.96	2.89	629	3882	13.75
																160	56.84	0.85	2.55	475	4055	8.87
	7	13.36	700	2.0	0.433	3.25	9.3	5.70	Approx. 20	57	43	33	87.00	2.10	5.72	Strength tests not made						
2260	15	10.0	400	2.5	0.344	3.42	9.8	4.75	Approx. 20	55	41	33	90.00	2.00	5.10	40	51.39	0.70	3.02	138	3186	9.12
																80	47.30	0.99	2.99	371	3587	11.00
																100	44.58	0.98	2.62	432	3799	12.12
																120	44.24	0.75	2.64	165	3162	11.87
	13	10.0	600	1.7	0.469	4.70	13.4	7.25	Approx. 20	55	43	34	88.40	2.60	6.90	40	51.39	0.50	2.98	32	2724	8.75
																80	51.73	0.87	3.15	233	3569	10.87
																100	50.37	0.92	3.08	331	4014	12.87
																120	53.77	0.90	2.98	561	4167	14.75
	16	13.35	600	2.2	0.696	5.22	14.9	10.50	Approx. 20	54	45	36	87.00	3.30	9.70	40	47.65	0.73	2.64	118	3054	10.62
																80	47.99	0.78	2.47	155	3355	10.87
																100	45.60	0.81	2.04	192	3616	9.12
																120	43.22	0.67	1.68	159	3419	7.75

whiter than that of test No. 1 (20 per cent powder, one-stage) showing a saving of over 25 per cent of bleaching agent.

The strength values, plotted in Fig. 1, showed plainly that any improvement in color, whether resulting from two-stage bleaching, increased bleach ratio, or an extraction treatment, was obtained at the expense of pulp strength. It appeared that the colored materials in the pulp were removed by bleaching powder solution with difficulty, and in such a manner that the removal of any definite quantity of these color-producing substances involved a definite degree of cellulose degradation.

Development of the Chlorination Process

Treatment of the pulp with chlorine water in dilute solution affected the colored components in such a way that they could be completely decolorized and removed with a relatively small additional amount of bleaching agent, and with a minimum of pulp degradation. Fortunately, the conditions selected at random for the first trials were those which later proved to be optimum for the operation. The amount of chlorine used in these trials for the chlorination treatment was equivalent to approximately one-half the bleach requirement of the pulp. The treatment was made at a consistence between 1 and 2 per cent and at room temperature.

A comparison of the data for completely bleached chlorinated pulps set forth in Table 4 and Figs. 2, 3, and 4, with the data of Table 2 and Figs. 1 and 4 for pulps bleached with hypochlorite alone, shows a very considerable difference between the products resulting from the two processes. In every case the bleached chlorinated pulps showed colors as good as, or better than, the others, higher bursting strength (around 1.0 points per pound per ream as against 0.8), and very much higher folding endurance (around 400 in contrast to less than 100 double folds.) The tearing strength of the chlorinated and bleached pulps was also very high, being 2.5 to 3.0 grams per pound per ream as against 1.2 to 1.7 for the pulps bleached with hypochlorite alone, at maximum bursting strength development. The chemical properties of the bleached chlorinated pulps were excellent, the alpha-cellulose

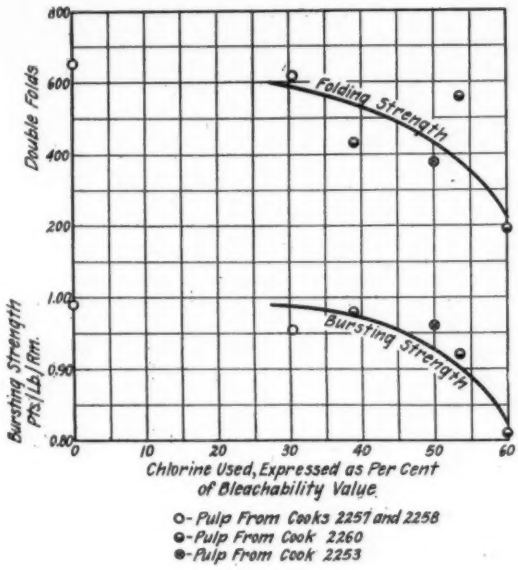


FIG. 6

Effect of degree of chlorination on the strength properties of the chlorinated pulps

TABLE 4.—BLEACHING CHLORINATED LOBLOLLY PINE PULP WITH HYPOCHLORITE, AND DATA ON THE BLEACHED PULP

			Extraction				Bleaching						Chemical data				Color			Strength development					
			Chemical																						
Cook No.	Chlorination No.	Bleach No.	Kind	Amount, per cent [1]	Consistence, per cent	Temperature, deg. C.	Time, minutes	Consistence, per cent	Temperature, deg. C.	Bleach ratio, per cent	Time, minutes	Silicate added, cc.	Total bleach used, per cent [2]	Alpha cellulose, per cent	Copper number	1% NaOH soluble, per cent	Ash, per cent	Red, Ives parts	Green, Ives parts	Blue, Ives parts	Time in pebble mill, min.	Weight per ream 24 x 36 — 500, pounds	Bursting strength factor, pts./lb./ream	Tearing strength factor, gms./lb./ream	Folding endurance, double folds	Tensile strength, meters breaking length	Stretch, per cent
2253	1	6	Hot water	2	40	60	3	40	2	225	..	16	89.20	2.52	5.33	...	89	85	79	20	51.73	0.61	3.05	40	2917	8.2
																				40	49.69	0.84	3.11	78	3362	10.2
																				60	44.92	1.01	2.96	288	4150	9.3
																				80	47.65	0.93	2.67	263	4083	7.1
		7	Hot water	2	40	60	3	40	1	130	..	15	90.01	2.11	4.10	...	88	84	78	20	46.28	0.50	2.72	18	2570	7.25
																				40	50.37	0.83	3.10	117	3215	7.6
																				60	51.73	1.04	3.33	382	4073	9.45
																				80	51.05	1.07	2.95	534	4685	11.25
																				100	53.77	0.97	2.35	337	4630	10.37
		8	.....	..	..	..	3	40	2	240	..	16	89.01	2.14	5.18	...	93	87	80	20	53.77	0.50	2.46	23	2060	7.1
																				40	52.75	0.71	3.05	81	3085	8.6
																				60	53.09	0.94	3.16	146	3600	9.7
																				80	52.41	1.02	2.73	372	3985	11.5
																				100	54.46	0.98	2.40	325	4125	9.65
		9	.....	..	..	..	3	21	2	980	..	16	89.70	1.34	4.65	0.34	91	86	80	20	52.07	0.63	2.89	36	2615	6.87
																				40	55.48	0.83	3.36	164	3171	8.62
																				60	50.71	1.01	3.22	474	3880	9.12
																				80	52.07	1.08	2.73	417	4086	10.12
																				100	49.35	1.01	2.67	544	3931	16.62
	2	10	.....	..	..	..	3	40	5	270	..	17.5	90.50	1.76	5.94	0.21	92	88	82	20	53.09	0.55	2.62	26	2654	6.62
																				40	53.09	0.79	3.07	177	4092	7.87
																				60	51.73	1.05	2.72	224	4095	7.75
																				80	51.05	0.99	2.59	359	4022	11.50
		11	.....	..	..	..	3	40	5	340	25	17.5	89.50	1.64	5.40	0.37	90	88	83	20	51.39	0.52	2.79	31	2757	7.00
																				40	51.05	0.84	2.84	69	3310	7.62
																				60	49.69	0.95	2.96	345	4372	10.12
																				80	49.69	0.93	2.53	293	4065	9.12
		12	NaOH	2	3	36	30	3	40	3	240	..	15.5	90.40	1.94	5.92	0.39	94	88	82	20	49.35	0.57	2.37	36	2653	6.87
																				40	47.65	0.84	2.39	189	4452	8.37
																				60	48.33	1.02	2.50	192	4159	9.62
																				80	50.37	0.92	2.37	268	4355	9.87
		13	NaOH	2	3	37	30	3	40	3	320	50	15.5	89.20	1.38	4.86	0.65	92	87	83	20	57.86	0.63	3.83	93	3056	8.00
																				40	50.03	0.89	3.04	145	3790	9.37
																				60	51.39	1.05	2.93	446	4612	11.25
																				80	52.07	0.96	2.57	468	3875	10.15
		14	.....	..	..	..	3	40	5	510	50	17.5	89.10	1.37	5.20	0.64	93	89	85	40	51.73	0.87	3.05	146	3842	8.88
																				60	51.73	1.00	2.86	455	4380	10.25
																				80	50.71	1.00	2.57	310	4320	10.87

[1] Calculated on the pulp. Two pounds pulp used for each bleach except No. 14, for which only one pound was used.
[2] Chlorine water used, calculated as bleach powder, plus bleach powder used.

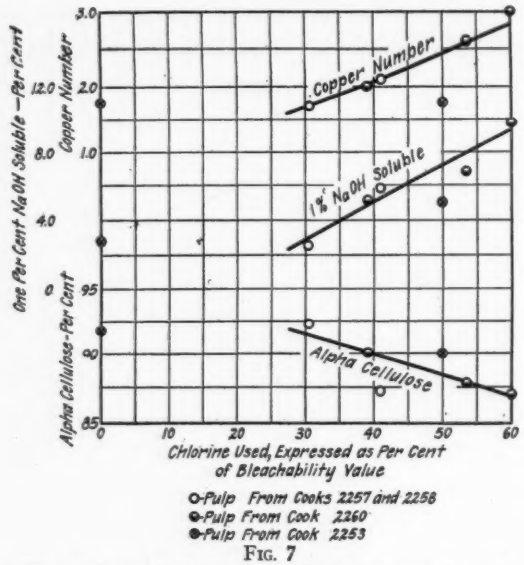

Copper Number
1% NaOH Soluble
Alpha Cellulose
One Per Cent NaOH Soluble—Per Cent
Copper Number
Alpha Cellulose—Per Cent
Chlorine Used, Expressed as Per Cent of Bleachability Value
Pulp From Cooks 2257 and 2258
Pulp From Cook 2260
Pulp From Cook 2253

FIG. 7

Effect of degree of chlorination on the chemical properties of the chlorinated pulps

content of 89 to 90 per cent being a comparatively high value for bleached pulps and the copper number, frequently less than 1.5, showing very little degradation of the cellulose. It should not be overlooked that the developed bursting and folding strengths for the finally bleached pulps were actually higher than for the pulps before bleaching.

In addition, the data in Table 4 show that the extraction of the chlorinated pulp with hot water, or with dilute caustic soda, did not lead to appreciable savings in bleaching chemical nor to improvements in pulp quality. This point is in agreement with the results of the hypochlorite bleaching tests, and appears as contradictory to results reported by others[9] on the bleaching of sulphite pulps.

The temperature employed during bleaching of the chlorinated pulps was found to have but slight effect upon the pulp quality. This is shown by tests 8 and 9 of Table 4, made at 40° and 21° C. respectively. Any difference in pulp quality was in favor of the lower temperature, but except for the copper number value, such differences were practically negligible, which agrees with earlier results[12] on the hypochlorite bleaching of sulphite pulps.

Effect of Addition of Sodium Silicate in Bleaching Chlorinated Pulps

It has been reported[13], that the addition of sodium silicate to the pulp during bleaching results in considerable improvement in color with a sulphite pulp, but is without effect on alkaline-cooked pulps. Since chlorination, like sulphite pulping, is essentially an acid process it was thought that addition of silicate in the final stage bleaching of chlorinated pulps might be of value. Tests 10,

[13] Carter, J. D., Ind. Eng. Chem. 18, 248-52 (1926).

TABLE 5.—BLEACHING CHLORINATED LOBLOLLY PINE PULP WITH HYPOCHLORITE, AND DATA ON THE BLEACHED PULPS

Preparation			Bleaching					Total bleach consumption[1]		Color			Chemical data				Strength development						
Cook No.	Chlorination No.	Chlorine used calculated as bleach powder, per cent	Bleach No.	Consistence, per cent	Temperature, deg. C.	Bleach ratio, per cent	Time, minutes	Basis pulp, per cent	Basis bleachability, per cent	Red, Ives parts	Green, Ives parts	Blue, Ives parts	Lignin, per cent	Alpha cellulose, per cent	Copper number	1% NaOH soluble, per cent	Time in pebble mill, min.	Ream weight 24 x 36—500, pounds	Bursting strength factor, pts./lb./ream	Tearing strength factor, gms./lb./ream	Folding endurance, double folds	Tensile strength, meters breaking length	Stretch, per cent
2257 and 2258	3	7	202	3	40	12.5	195	19.5	86.7	87	82	69	...	87.5	2.17	9.55	20	50.03	0.46	3.07	22	2520	6.87
																	40	49.35	0.65	2.90	100	3347	8.30
																	60	54.46	0.86	3.07	302	3786	11.25
																	80	54.11	0.89	2.91	430	4154	13.00
																	100	52.07	0.92	2.95	361	3956	10.75
																	120	52.75	0.95	2.22	459	4041	12.37
																	140	52.75	0.83	1.89	467	4249	9.62
																	160	58.54	0.69	1.78	344	3677	8.62
			203	3	40	14.5	420	21.5	95.4	90	87	81	...	83.2	2.96	8.62	20	50.37	0.45	3.18	33	2852	7.62
																	40	47.65	0.73	2.94	131	3813	8.87
																	60	47.65	0.78	2.57	179	3837	10.00
																	80	46.96	0.82	2.16	162	3889	10.25
	7	9.3	211	3	40	7.0	200	16.3	72.4	87	88	77	0.50	88.7	2.65	9.20	100	49.35	0.76	1.95	138	4260	9.00
																	20	46.28	0.44	2.63	12	2302	7.25
																	40	48.33	0.69	3.15	57	3118	9.12
																	60	49.01	0.80	2.82	311	3709	11.37
																	80	45.94	0.74	2.73	163	3629	10.50
			212	3	40	9.0	420	18.3	81.3	89	86	80	Trace	83.4	3.59	11.70	20	51.05	0.45	2.27	29	2551	7.75
																	40	42.54	0.78	2.48	81	3257	9.00
																	60	46.28	0.77	2.17	87	3698	12.12
2260	15	9.8	218	3	40	7.0	...	16.8	67.2	89	85	80	0.80	88.6	3.00	9.90	80	44.58	0.68	1.83	89	3696	7.37
																	20	50.71	0.43	2.89	30	2495	6.55
																	40	49.01	0.65	2.80	64	3262	8.62
																	60	45.94	0.77	2.66	135	3492	10.62
																	80	46.28	0.76	2.20	150	3427	9.17
			222	3	40	5.0	170	14.8	59.2	85	78	71	0.40	89.1	2.40	8.50	20	44.92	0.55	3.04	16	2412	8.00
																	40	45.60	0.75	2.84	55	3050	9.50
																	60	42.88	0.78	2.69	149	3280	9.50
																	80	41.52	0.83	2.37	173	3619	11.90
	13	13.4	217	2.5	40	6.0	270	19.4	77.6	87	82	75	...	85.7	2.40	7.30	20	47.99	0.50	2.72	16	2276	7.37
																	40	46.96	0.71	3.19	77	3115	10.25
																	60	44.58	0.90	2.87	149	3482	10.62
																	80	42.20	0.78	2.52	113	3190	13.75
			221	3.0	40	7.0	300	20.4	81.6	88	83	76	0.8	85.4	3.70	11.50	20	46.62	0.55	2.44	14	2534	9.00
																	40	44.24	0.74	2.21	61	3177	9.25
																	60	43.22	0.78	1.87	90	3560	9.25
																	80	42.88	0.66	1.81	40	3195	7.25
	16	14.9	219	3.0	4.0	5.0	265	19.9	80.0	88	86	80	0.5	83.2	4.00	11.90	20	44.92	0.53	2.21	31	2489	8.62
																	40	46.96	0.73	1.98	30	2906	8.37
																	60	42.20	0.67	1.76	51	3157	8.50
																	80	39.46	0.60	1.42	38	3115	8.00
			220	3.0	4.0	3.0	165	17.9	71.7	87	81	71	0.6	86.3	3.50	11.50	20	44.24	0.47	2.54	20	2566	6.75
																	40	46.28	0.71	2.42	98	3190	9.25
																	60	44.58	0.70	1.90	50	2963	8.12
																	80	45.60	0.70	1.98	104	3416	8.87

[1] Includes both preparation (chlorination) and bleaching stages.

11, and 14 show that addition of silicate did improve the color, and was without adverse effect upon other pulp qualities. Owing to the increase in alkalinity brought about by the addition of the silicate, the bleaching time was considerably lengthened. The use of silicate may prove of some practical value in treating these special pulps.

Optimum Conditions for the Chlorination Process

Having found that the combined chlorine-hypochlorite treatment gave much better results than the ordinary hypochlorite bleach, the effect of varying the relative amounts of bleaching agent used as chlorine and as hypochlorite was investigated. It was expected that some one ratio would give the best results and it was hoped that some simple relation would be found between this particular ratio and the bleachability of the pulp, so that the application of the method to other sulphate or kraft pulps would be facilitated. An optimum ratio was indeed found for the specially cooked loblolly pine pulps, with bleachabilities between 20 and 27 per cent, here used, but a limited number of experiments on other kraft pulps, not here reported, have indicated that this optimism ratio varies considerably with the bleachability, with the kind of wood used, or with the details of the pulping process, and no general relationship has yet appeared.

Consideration of the results presented in Table 3 and Figs. 5, 6, 7 and 8 shows that by chlorination treatment alone the color of the pulp was improved but slightly, strength and chemical quality were gradually reduced, and the beachpowder required in the second stage to give the standard color was reduced rapidly to a constant value. It may be noted that the data given for chlorination 1 in Table 3 are on partially bleached pulp, the chlorinated pulp having been treated with 2 per cent bleach powder immediately after washing.

In regard to color, chlorination with less than 40 per cent of

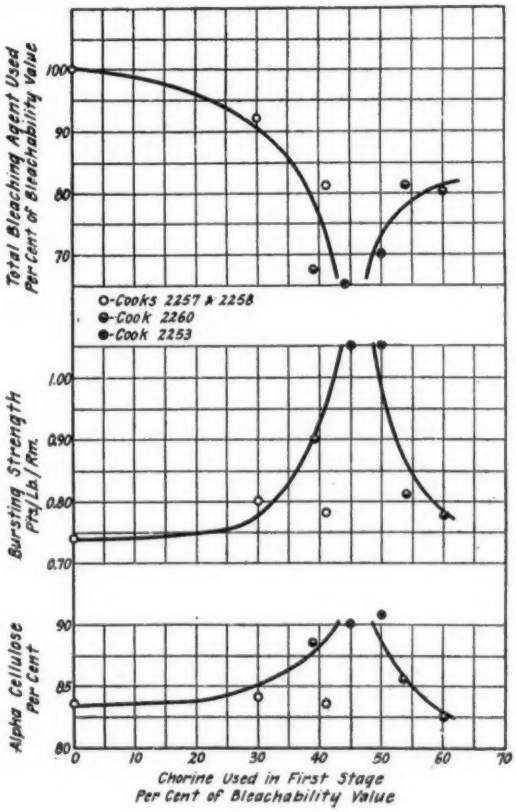


FIG. 9

Effect of the degree of chlorination upon the total bleach consumption, bursting strength, and alpha cellulose content of the completely bleached pulp

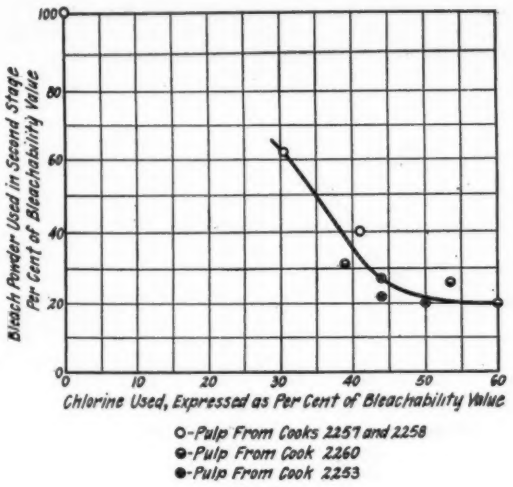


FIG. 8

Effect of degree of chlorination upon the subsequent bleachability of the chlorinated pulps

the bleach equivalent actually gave a product darker than the original pulp. The chlorinated pulps when first discharged from the drum were a bright yellow or reddish-yellow color, but rapidly darkened during washing. This color change was primarily an indicator effect occuring reversibly between pH 4 and pH 6. Eventually, however, the dark color became permanently fixed, apparently as a result of atmospheric effects on the chlorinated compounds present.

A comparison of the data here presented with other results (not presented at this time) which have been obtained by partial hypochlorite bleaching, has shown that the chemical and strength properties are, over the range studied, affected by chlorination in about the same way as by bleaching with equivalent amounts of bleaching powder solution. The principal difference is in the color, which is much better for partially bleached than for chlorinated pulps.

The data plotted in Fig. 9 are for pulps bleached to the same or very nearly the same whiteness (80 parts blue) selected from Tables 2, 4, and 5. This figure shows the total chemical consumption in chlorination and bleaching, the bursting strength, and the alpha-cellulose content of the various pulps plotted as functions of the amount of chlorine consumed in the chlorination stage of the process. This figure also shows that when the amount so used was between 45 and 50 per cent of the bleachability value of the pulp, the total bleach consumption reached a minimum of 65 to 70 per cent of the bleachability value while at the same time the physical and chemical properties of the bleached pulps showed maximum values.

The natural assumption would be that the maximum in strength corresponding to a minimum utilization of bleaching chemical must be a direct consequence of it. However, as already pointed out, a reduction in bleaching agent when this bleaching agent is wholly hypochlorite, regardless of whether such reduction is effected by use of a two-stage method or by extraction of the pulp with other chemical agents, does not give any improvement in pulp quality when the same color is obtained. Herein lies the essential difference between ordinary two-stage bleaching, and the chlorine bleaching process described in this report. The reason for the difference is not at present understood. It may be suggested that the chlorinated colored compounds are more sensitive to hypochlorite oxidation than are the same compounds in their original state, and hence can be removed with less danger of attack on the cellulose. The matter then becomes one of preferential oxidation, controlled by a difference in reaction rates.

It is unfortunate that the different experiments here reported were of necessity performed using several different pulps and at

quite widely separated times. This is especially true in view of the fact that the two samples showing the best strength and alpha-cellulose values in Fig. 9 were both from the same pulp, and that one of the points shown in this figure falls at a considerable distance from the curves drawn through the others. It must be emphasized that these curves are only drawn in roughly for the purpose of emphasizing the trends presented, and are not assumed to be absolutely correct. Although every effort was made to maintain all experimental conditions other than chlorine consumption constant, some unrecognized variations might have occurred which were in part responsible for the striking nature of the results shown in Fig. 9. Further experimental work is required to show the effects of all the factors in this particular bleaching process upon the properties of the bleached pulps.

The present work has definitely shown that, whatever the cause may be, a proper combination of chlorination and hypochlorite bleaching can produce excellent results with certain specially-cooked kraft pulps. The results may also be construed as indicating that a careful study of such factors as consistence and distribution of bleaching agent between the stages in a multi-stage hypochlorite bleaching process, might lead to a more satisfactory bleaching procedure than any yet known.[14]. From the practical point of view the development of a process using hypochlorites alone is highly desirable, since working with chlorine water solutions involves difficulties of plant construction and operation which would be avoided by the use of hypochlorites.

Summary

The most important facts brought out in this work are that, for the particular pulps used:

1. Bleaching with hypochlorite (bleaching powder) alone in one stage caused considerable degradation of the pulp.
2. Bleaching with hypochlorite in two stages resulted in decreased bleach consumption, but in no improvement in pulp quality.
3. The use of various extraction treatments showed the same result as the foregoing.
4. The use of chlorine water in place of bleach powder in the first stage of a two-stage bleach resulted in a decreased bleach consumption, and also in marked improvement in pulp quality.
5. Optimum results were obtained when the chlorine used in the first stage was held between 45 and 50 per cent of the total bleach requirement. This narrow optimum range is apparently peculiar to the specially cooked pulps used and would be different for other pulps.
6. The addition of small quantities of sodium silicate during the bleaching of the chlorinated pulps had a beneficial effect upon the final color, but increased the bleaching time.

[14] A recently published article by Dr. Emil Heuser—Pulp Paper Mag. Canada 30, 101-4, 116 (1930)—contains data which furnish a very interesting and valuable confirmation of this assumption.

New TAPPI Members

Hugh P. Baker, now Dean of the New York State College of Forestry, Syracuse, N. Y. is well known to everyone in the pulp and paper industry. Dr. Baker is a graduate of Michigan State College, a master of forestry of Yale and received his doctor's degree from Munich in 1910. He has been a professor at Iowa State College and Pennsylvania State College and the N. Y. S. College of Forestry; served in the U. S. Forest Service, was manager of the Trade Association Department of the U. S. Chamber of Commerce. and from 1920 to 1928 was executive secretary of the American Paper and Pulp Association. Dr. Baker was formerly a TAPPI member and has long been one of its staunch friends.

Jackson Burgess is treasurer and general manager of the Burgess-Parr Company, Chicago, Illinois, pioneers in the application of the photoelectric cell to color analysis. After attending the University of Wisconsin, Mr. Burgess carried on research work at the C. F. Burgess Laboratories in Madison, Wisconsin and the Urbana Coke Company at Urbana, Illinois. At the recent meeting of TAPPI he read a paper describing a new device for analyzing color.

Otto Knutz is a chemical engineer in Falun, Sweden, and was until recently assistant manufacturing manager of the Cornstalk Products Company of Danville, Illinois. After graduating from the Toyal Institute of Technology in Stockholm, in 1923 he worked as a chemical engineer for F. H. Munktells Paper Manufacturing Company at Grycksbo, Sweden; assistant to chief engineer of the Chesapeake Corporation of West Point, Virginia; tour foreman for the Analomink Paper Company of North Water Gap, Pennsylvania and chemical engineer of Johnson and Johnson of New Brunswick, N. J. Mr. Kuntz is at present studying paper mill operations in America but expects to sail for Sweden soon.

Henry C. Press, until recently was research chemist of the Oxford Paper Company at Rumford, Maine and a graduate in 1921 of Darmstadt in Germany. Since then he has been superintendent of the German mills at H. A. Schoeller Sohne, Felix Peltzer Company and Roland Risse Company.

William J. Dial is general superintendent of the Oxford Miami Paper Company at West Carrollton, Ohio and has been superintendent of various mills since 1911. These include the mills of Crocker-Burbank in Fitchburg, Mass., Champion Coated Paper Company, Hamilton, Ohio, Champion Fibre Company, Canton, N. C., Mead Fibre Company, Kingsport, Tenn., Jessup & Moore Paper Company, Rockland Mills, Delaware, Franklin Ohio Paper Company, of which he is now manager.

J. Walter Juckett, chief chemist of the Hurlbut Paper Company of South Lee, Mass. is a recent graduate of Norwich University, and has worked for several summers in Westfield, Mass., for the Old Colony Envelope Company.

Engelbert Krichels is an engineer and chemist with the Hurlbut Paper Company of South Lee, Mass., and is a recent graduate of Gewerbe-Hochschule, Kothen, Anhalt, Germany. He has worked in several Austrian and German mills.

TAPPI Notes

W. F. Hathaway who has been a chemist of the Kalamazoo Vegetable Parchment Company is now a student at the University of Maine.

E. W. G. Cooper formerly superintendent of the Don Valley Paper Mills, Toronto, Ontario and recently with the Racquette River Paper Company of Potsdam, N. Y. has accepted a position as papermaker at the Camas, Wash. mill of the Crown Willamette Paper Company.

I. H. McHenry, who was general superintendent of the Ste. Anne Paper Company of Beaupre, P. Q., is now superintendent of the Maine Seaboard Paper Company of Buchsport, Me.

E. J. Johnson, formerly with the Paper Makers Chemical Corporation at Lockport, N. Y. is now chemical engineer of the Lockport Felt Company at Newfane, N. Y.

G. L. Witham who was formerly paper machine operator of the experimental laboratory of the Bogalusa Paper Company is now with W. C. Hamilton & Sons at Miquon, Pa.

Eric Lindeberg who is now with the Hellefors Bruks at Fredriksberg, Sweden as consulting engineer, was formerly superintendent at the Nipigon Corporation in Ontario.

Gunnar Nicholson is at present in New York, having recently resigned his position as superintendent at the Bogalusa Paper Company, Bogalusa, La.

W. Hirschkind, chief chemist of the Great Western Electrochemical Company at Pittsburg, Cal., was a New York visitor last week.

J. LeMee is now a machine operator at the Dalhousie mill of the New Brunswick International Paper Company. Mr. Le Mee was until recently Canadian representative of the Magnuson Products Corporation of Brooklyn, N. Y.

John Monty is also a machine operator at Dalhousie having been transferred from the general offices in New York.

Section of the

COST DEPARTMENT

of the

American Paper and Pulp Association

Edited by T. J. Burke C. A. Director Cost Dept.

Federal Trade Commission Report on Cost Work In Open Price Trade Associations *

(Continued from the Issue of January 1, 1931)

Section 4—The Cost-Comparison Work of Trade Associations

Cost Statistics Distinguished From Trade Statistics.

Trade statistics generally, like the price-information works which characterizes the open-price association, relate primarily, in practice and as a product of trade associations, to the selling end of the industry rather than to the buying end. But trade associations also frequently interest themselves in the numerical data regarding materials purchased, wages paid, and other costs, particularly costs internal to the establishment and relating to processes of manufacture and sale.

Statistics of purchase prices are compiled chiefly by associations in industries purchasing raw products and food-stuffs, where climatic conditions cause large variations in supply, and where the different territories from which the raw materials are obtained may show quite different supply conditions, and to some extent, differences in prices.

It appears to be a common practice of the canning associations to compile and distribute statistics of the prices of the foodstuff canned. Sometimes lines in which certain varieties of lumber are used as raw material collect statistics of prices paid for such lumber, although it would seem that lumber manufacturers' associations supply an adequate quantity of trade statistics regarding lumber production and distribution, if available to the buyer. As regards wage statistics collected, the interest of a trade association, although it is a cost interest in part or indirectly, is rather a matter of having data on hand for reference and use in connection with wage settlements. If is possibly also true that wage statistics are more commonly developed in detail by associations of limited territorial extent than by national associations. Only incidental mention is accorded in this report either to statistics of materials purchased, or to wage statistics, collected by associations.

Statistics of cost of manufacture and sale deserve more than incidental mention, because of their obvious relation to selling prices. The work of associations along cost-accounting and cost comparison lines has direct reference to selling prices. Furthermore, if the attempt be made to compile complete costs, including indirect or overhead, as well as direct costs, *the result is a figure that may be used as a basis for individual price determination, not to say concerted price fixing. Hence, considerable attention may properly be given to the subject of cost comparison in this inquiry*

* From Letter from Chairman of Federal Trade Commission transmitting to Senate report on "Open-Price Trade Associations."

Why Cost Comparison Is An Important Trade-Association Activity

An adequate study of the nature and effects of the cost-information work done by trade associations can not be made in connection with the present inquiry. Some general consideration of the results expected, however, is necessary.

In the first place, it is important to note that the trade association is not greatly interested in cost accounting merely as an applied science, although this sort of interest is, of course, not entirely absent. The members of a trade association want uniform methods of cost accounting frankly because they believe the marketing conditions of the industry will be improved by better accounting practice and by cost comparisons. *It is conceivable that better accounting by itself might accomplish a great deal along this line, since prices would not be made in sheer ignorance of costs if every competing establishment had a good cost accountant on the job.* In many lines there are numbers of small establishments that can not afford to hire a cost accountant. This situation has its dangers, even for the well-meaning trade association secretary, who is interested in obtaining for his members generally, benefits from better knowledge of costs; that is, he is tempted to suggest to such a small establishment what its costs ought to be, and the temptation for the small business man is, to accept suggestions contained in the compilations and averages made by the association, rather than to take the trouble to work out his own costs. This, it is true, involves going beyond cost accounting into cost comparison.

In fact it is difficult to consider the effects of uniform cost accounting apart from cost comparison and cost statistics. It is substantially true that the only trade-association interest in uniform cost accounting is as a basis for cost comparison. If the comparisons are to be of definite significance, the method of charging for the various items of cost should be identical; that is, there should be a uniform system of accounts. While something can be accomplished without such a uniform system, it is fundamental for satisfactory comparison. Without such explicit comparison, the make-shift resorted to, is the comparison by one business man of his costs to manufacture and sell with his competitor's prices. Such comparison is not as instructive to the former as the comparison of classified items of cost, and it may lead to destructive business policies.

The following facts indicate the degree of concrete connection between the use of uniform accounting systems and the

circulation of cost data: Of the 10 open-price associations that are actively engaged in the collection and circulation of cost statistics, 5 are using uniform accounting systems. Fourteen other open-price associations report the use of cost manuals, but apparently do little or nothing in the line of cost comparison. Only 23 of the 55 trade associations, other than open-price associations, reporting cost comparisons are using uniform systems, while 48 of the 75 associations using uniform systems make no mention of any activity in the circulation of cost data.

As regards the form in which cost data are circulated by trade associations, it appears that, for greatest effectiveness, not mere average results for participating members, but individual, though not identified, data should be sent out. In general this is done. When the participants are too numerous, other methods of showing the variation (or dispersion) of the results, involving condensation, may be employed. It is important at least—as those interested repeatedly state—that the individual be able to rank himself as to efficiency or inefficiency with respect to each element of cost in comparison with others in the industry.

Expected Effects

A general statement of the kind of effect that cost comparison may be expected to have upon prices is that the lowest prices will tend to be raised, because they are due to ignorance and lack of bargaining power on the part of those who make them. If the bulk of a commodity is moved in its market close to a certain average level, it is obvious that prices noticeably below that average are the result of somebody's mistake or somebody's over-reaching; unless, indeed, the very low price is made in a separate market and not properly comparable with the average to which it is referred, as may often be the case in published prices. Of course, this is not a kind of variation that cost comparison is intended to or can correct.

At the other extreme, in the range of prices, there are some that are too high by comparison with the general average for the time being. In this case it is presumably the ignorance of the purchaser that has been imposed on; although it is necessary to mention, also, the possibility that there may be a preference on grounds of quality and service which are not adequately differentiated in the price statistics. This may mean merely that differences of quality, which give to certain parts of the output of the industry a special reputation and a market of their own, are operating as a disturbing factor.

It is worth nothing, in passing, that the circulation of cost data by an association does not so directly tend to correct the excessively high prices as it does the unduly low prices, although it is usual to claim such impartial influence. Even if there is willingness to make the cost data known to the public generally, including buyers, it does not reach the buyers so soon or so effectively as it does the sellers. *But it may be accepted as a valid general proposition that cost comparison, if well developed, will have a tendency to narrow the range of variation in prices for a particular commodity.*

The Danger of Inelastic Prices

The primary advantage of cost comparison is alleged to be the preserving of a greater degree of uniformity in prices in the market at any given time; but the convenient use of the world "preserving" in this connection suggest that the result is also a matter of preventing the upsetting of prices and, of course, in particular preventing "demoralization" by price cutting. In other words, it is hoped that cost data will cause prices to be maintained at substantially the same levels through long periods of time.

It is a question whether, by aiming at too much stability, there may not be achieved, instead, too little elasticity. With too little elasticity, there may be stability of a sort; but one way to prevent breaking is to permit bending. The inelasticity that is achieved by artificial means may be suddenly broken with greater injury to trade than would result if prices were modified in response to changing conditions.

This reference to a wrong kind of stability is particularly pertinent to the attempt of some cost accountants to spread overhead and fixed charges evenly over the output, regardless of the degree of utilization of plant and organization, with the result that, when business is poor, computed costs per unit, due to overhead, are very high, and when business is good, these elements in costs per unit are very low.

There is a similar danger in the principle enunciated by some trade-association theorizers that there should be no difference in price except such as is based on difference in cost. Even if the unit costs arrived at by the accountant were objectively definite and indisputable, instead of being largely a matter of estimate and opinion, this principle would still be open to question. *As it is, however, cost accountants are perhaps too fond of prorating, and, indeed, are compelled to prorate costs, to a great extent, regardless of variations dependent on conditions of demand.*

The too easy assumption of many cost accountants and of others is that the price of a product should be based on its average cost, and should not vary, except possibly as costs are considerably reduced in course of time through improvements in processes or through reductions in prices of raw material, etc. In relation to such matters, the cost accountant may too easily forget all about the pervasiveness of the problem of by-products. He may have disposed of the matter by some sort of assumption on paper so that he gets unit costs permitting him to compare, in terms of figures, the various joint products, but anyone else would get a different result, and the diverse results are very likely based on apportioning joint costs between joint products to a very large extent on relative market or sales values. This involves reasoning in a circle; but for certain practical ends the method has its uses.

This situation develops in any industry where the proportions of the product, or the qualities of the product, are not entirely within the control of the manufacturer. It is true, for example, in particular, of the lumber industry, where the proportions of the different grades cut depend upon the natural qualities of the different parts of the tree to a very large extent. The adjustment of the supplies of the different grades and cuts of lumber to the demand can be effected only by changing relative prices from time to time, so as to encourage and increase the demand for one kind of lumber and discourage the demand for another kind.

If the cost accountant goes beyond his proper sphere and tries to provide in his cost figures for a reasonable and average rate of profit, he is merely proving further his folly. Profits are the result of the market rather than a cause of market price.

In particular, the average cost of an industry, while it is relevant to the price of the commodity, is no basis on which to determine the price. If a price were to be fixed by some public authority on the basis of such information, it would not be the average price probably, but what was described during the war as the "bulk-line figure"—a method which was developed by the Federal Trade Commission as the nearest substitute for competition. This term, and the reasoning back of it, is interesting in the present connection, because it relates to the quality demanded at various prices and assumes that the costs of most of the producers will have no direct effect on the price at which such a market equilibrium is effected. Some producers have costs so high that the market can not be expected to reimburse them. Other highly efficient producers have especially low costs, because of their internal efficiency or advantages of location and they will receive much more than their costs. The price fixed is approximately uniform for all producers selling in the same market end, as a result of this, some make profits and some losses. This fundamental situation always

holds under competitive conditions, and may be expected to hold substantially, regardless of the ideas of some associations that producers are entitled to cost plus a fair profit.

The great variation of costs among different producers has recently been commented on by a trade association executive as suggesting the little reliability of any average that might be struck from such costs. Provided the methods of accounting are uniform, the reliability of the average is not so questionable as the legitimacy of using the average as if it were the decisive factor in determining market price. The fallacy of assuming that prices can be based on average costs is usually implicit, rather than definitely expressed, but sometimes the idea is made explicit.

Value of Cost Statistics to the Buyer

Although only large buyers, or the purchasing agents of large buyers, are in a position to spend time enough to analyze cost data and draw conclusions as to what is a fair price for the product, this possibility deserves mention in the present connection. Too often, although not always, the cost data circulated by trade associations are made a privilege of membership instead of being treated as statistics of more or less public interest. It is true that the buyer may sometimes take advantage of the seller, through the latter's ignorance of the market and of his own costs, and thus get the benefit of an unduly low price—which unfair advantage will, according to the protagonists of cost comparison, be largely taken away from him by the development of cost-comparison work. It is presumably also true, on the other hand, that the buyer is sometimes overreached by the seller because the former does not know in general what the costs in the industry are, and it is, therefore, likewise desirable that the buyer be informed as to costs.

It is alleged and is probable that the intelligent large buyer—in particular that is, the purchasing agent of a large corporation—would be less inclined to try to drive a hard bargain, if he knew what the costs in the industry in general were. He is interested in getting a low price in the long run and in having a permanent source of economical supply. It would greatly aid him to know as much about costs as does the office of the trade association, for example, and it would not necessarily, in the long run, hurt the members of the association. The attitude of purchasing agents with reference to prices in industries where costs are pretty well known bears out this general statement. The purchasing agent, it is true, is not willing to give the seller the benefit of a wide margin between cost and price, but the seller who occasionally gets, and tries all the time to get, a wide margin is probably destroying his own trade. A specific illustration of alleged willingness to pay a price without much bargaining is said to be afforded by the bituminous coal industry, where the cost of labor is a matter of general information, and where the public is pretty well informed as to the costs of mining operations.

It is impossible to state on a comprehensive basis the attitude of the cost-statistical associations with regard to publicity of such data and their being made available to purchasers. Of course, the bulletins of cost statistics compiled by the Harvard University Bureau of Business Reasearch for various trade associations and industries are for sale to the public. Where similar work is done by the trade association itself the definite policy of the association can be stated in the following cases. The National Lumber Survey, published by the National Lumber Manufacturers' Association, contains, among other lumber statistics, a monthly summarization (average cost) of cost of lumber production, including stumpage, logging, milling, planing, shipping, selling, other costs, and total costs for the following associations:

Southern Pine Association,
West Coast Lumbermen's Association,
North Carolina Pine Association, and
Hardwood Manufacturers' Institute.

The secretary of one of these associations (the West Coast Lumbermen) stated in 1922 that the association collected statistics of costs, and so forth and for some time past has made it a practice to give this information to the public as well as members.

All such information is passed on to the newspapers and trade papers.

The Tri-State Zinc and Lead Ore Producers' Association states:

* * * The summarized or average costs and other operating data * * * are distributed to members, United States Department of Commerce, and the press of the district.

Whether these data are as detailed as buyers might desire and as promptly available to the public as to members, has not been systematically ascertained.

There are doubtless other cases where the policy is as definitely in favor of general availability of the information to the public, although costs are among the last things that manufacturers are willing to give out, even in unidentified form and to their fellow association members only. This subject is closely related to the general question of publicity of trade association statistics discussed more in detail elsewhere in this report.

It is important to note in this connection that the serviceability of cost statistics requires that they be presented, not as mere averages but in a way to show their range of variation and even their frequency distribution.

It is a reasonable conclusion from this rather general consideration of trade-association cost work that cost comparison may well be further developed on the basis of better accounting and that the data may well be treated as statistics of general interest and not merely of concern directly to the members of the association. Probably the quality of the statistics, as well as the serviceability of the work, would be increased by making the data available to the public generally.

In some lines of business, which are more or less in the nature of public utilities, cost data are reported to public authorities and by them occur to advantage without compulsion in many lines.

(*To be concluded*)

Thomas H. Savery Jr. Dead

The many friends in the paper industry of Thomas H. Savery, Jr. were shocked to learn of his recent sudden death. Mr. Savery slipped on the ice near his home in Chicago on Monday, December 29, was fatally injured, dying on December 31. At the time of his death he was 58 years old.

Mr. Savery has for many years been a manufacturers agent representing the Bird Machine Company and the Nash Engineering Company. He was a graduate in mechanical engineering from Cornell University and was formerly manager of the Rocky Mountain Paper Company, director of the Shenandoah Pulp Company, and director of the Harpers Ferry Paper Company.

Mr. Savery has been an active and enthusiastic supporter of the Technical Association of the Pulp and Paper Industry since 1917.

So far as Mr. Savery's Nash business and connections are concerned they will be taken care of by Edward Mead, at present assistant sales manager of the Nash Engineering Company, at South Norwalk, Conn. Mr. Mead will go to Chicago immediately and will make his headquarters at Mr. Savery's office.

Cornstalks Publications

Two bulletins have recently been issued by the Iowa Engineering Experiment Station of the Iowa State College, Ames, Iowa, describing the work done by O. R. Sweeney and Lionel K. Arnold of that institution.

Bulletin 98 is entitled, "Cornstalks as an Industrial Raw Material," and the title of Bulletin 100 is "The Production of Paper from Cornstalks."

To Be Sales Manager of Northwest Paper Co.

I. L. Gartland, for many years closely identified with the paper industry, has been appointed sales manager of the Northwest Paper Company, Cloquet, Minn., effective January 1.

The Northwest Paper Company, an affiliated company of the Weyerhaeuser lumber interests, manufactures a complete and varied line of paper. Their principal products include Klo-Kay and Wilson book paper, offset papers, all types of printing papers, wrapping papers—kraft, sulphite and sodite—and specialties. This company also operates a news print paper plant at Brainerd, Minn.

The Northwest Paper Company, due to its affiliation with the Weyerhaeuser companies controls all its properties and so guides each step in the manufacturing processes from the standing timber to the finished paper.

Mr. Gartland brings with him to his new position a wealth of experience in all phases of this business. Starting twenty years ago as an apprentice in the beater room, he worked his way up through the paper machine room, research department, and later into sales work. During the past few years Mr. Gartland has

I. L. GARTLAND

been associated with the following companies: Port Huron Sulphite and Paper Company, Fletcher Paper Company, Baylass Manufacturing Company, Saranac Pulp and Paper Company, and Groveton Paper Company.

Mr. Gartland is likewise well-known in the paper industry, due to a number of articles which he has contributed to association periodicals on control, manufacture and technical problems. He has also prepared a number of technical articles on highly specialized di-electric papers for the electrical industry.

Mr. Gartland is a graduate of Fordham University, and is a member of both the American Academy of Science and the Microscopical Society.

E. P. Bagg To Relinguish Control

HOLYOKE, Mass., January 6, 1931.—Edward P. Bagg, president and treasurer of the Parsons Paper Company, announced last Wednesday his intentions of relinquishing the burdens of direction and oversight of the affairs of the company and though he will retain these offices nominally the actual work will pass to other hands. Mr. Bagg has been with the Parsons company for about 53 years, for the past 46 years as president and treasurer. He entered the employ of the company under the late J. C. Parsons from whom the company took its name, April 15, 1877. Upon the death of Mr. Parsons in 1884 he succeeded him as treasurer; so there have been but two treasurers in the company's entire history.

The original mill was what is now the Parsons Division of the American Writing Paper Company. The No. 2 mill on Sargent street was built in 1889; and when the American Writing Paper Company was formed they took over the No. 1 mill and the Mt. Tom mill (originally built in 1856 and known as the Hadley Falls Paper Company but later absorbed by the Parsons company) but the Parsons Paper Company retained its No. 2 mill, built a new office and made other additions and improvements and continued to do business under the old name.

The finances will be looked after by Elmer B. Cooley, present assistant treasurer, and the sales and production by George A. Eastwood.

Selected Dilts Beaters on Past Performance

In a recent issue of *The Tomahawk Leader* there was printed under the caption "Selected Dilts Beaters on Past Performance" the following notice regarding the installation of Dilts beaters in the mill of the Tomahawk Kraft Paper Company at Tomahawk, Wis.:

"One of the truisms of paper making is the assertion that the paper is made in the beaters. It is in the beaters that the pulp or raw material is "beaten up" and properly prepared for passing between the "wringer rolls" and over the drying cylinders of the paper machine and pressed into a sheet of paper.

"Treatment of the pulp in the beaters is an "artful science" and the selection of proper or improper beating equipment spells success or failure for the mill.

"The beaters in the Tomahawk Kraft Paper mill are from the shops of the Dilts Machine Works, Inc., of Fulton, N. Y. They have been building beating engines since the year 1868—"since Grant was running for President,"—from coast to coast, from Panama to the Arctic Circle, in fact clear around the world (for Dilts beaters are in England, Japan, China, Australia) Dilts beaters are making all kinds of paper,—tissue, news, book, kraft, rope, straw, roofing, box board, insulating,—all grades. They are good beaters, leaders in performance, leaders in design and construction, leaders in economical operation,—and the selection of Dilts beaters by the Tomahawk Kraft Paper Corporation is the natural result of their long experience in making good paper.

"The beating equipment of the Tomahawk Kraft Paper mill is unquestionably the best,—it is Dilts Beaters!"

Better Demand Expected in Indianapolis

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., January 5, 1931—Indications point to a gradual return of normal business during the coming year. Stocks in wholesale houses are not heavy and any demand of respectable proportions will react almost immediately on the manufacturers.

Demand for cartons and other similar merchandise is at a rather low ebb just now and the manufacturers of this merchandise in Indiana are not expecting much until after the Christmas reaction. Then, they report, indications are good. In the meantime the factories are operating only on part time.

All lines of cellophanes and waxed papers have been moving good and little decline in demand is expected even though the holidays are over. In some instances holiday merchandise was so wrapped that it may be re-wrapped if not sold, thus saving the stock and enabling the retailer to sell the merchandise from his regular stock.

Manufacturers of fine papers are active in promoting their market among the paper jobbers and the printers. The volume of spring direct mail advertising should be good, though it has not started as yet and printers are not inclined to purchase until they have actual orders. However, they say there is a large amount of this work in prospect that even now is being figured on.

The paper stock market is in a demoralized condition here. Local paper stock men say manufacturers are not buying and that buying prices are down and warehouses full. There are a few inquiries but the prices offered are far from satisfactory.

TENAX IS A LOCKPORT FELT
TENAX FELTS ARE GOOD FELTS

A few years ago we brought out the TENAX FELT—

Our growth has proven the superiority of the TENAX idea.

We design and manufacture TENAX FELTS to meet specific conditions for all kinds of paper and board.

Mills never having used our TENAX FELTS should write us today.

TENAX FELTS are manufactured only by

LOCKPORT FELT COMPANY
NEWFANE NEW YORK

PERKINS Granite Press Rolls

No CALENDER *can be better than the* ROLLS *in it*

Master workmanship, construction and the superior qualities of granite used by Perkins exclusively in Perkins Granite Press Rolls have been recognized by most progressive paper mills.

Perkins granite is hard, fine and close-grained. It takes an extremely smooth finish and retains this finish for years without the need of regrinding.

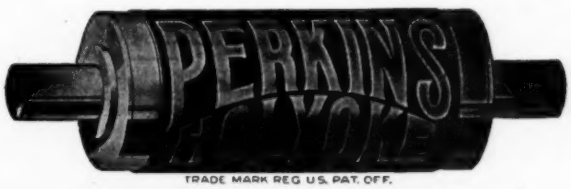
Perkins Granite Press Rolls mean fewer breaks, a dryer sheet, no sticking, greater operating speeds.

Perkins Granite Press Rolls are being used increasingly for size presses.

Widths up to 250 inches are operating successfully.

B. F. Perkins & Son, Inc., Holyoke, Mass.

Engineers and Manufacturers



TRADE MARK REG. U.S. PAT. OFF.

Cotton Rolls	Web	Mullen Paper
Paper Rolls	Supercalenders	Testers
Embossing Rolls	Friction	Tensile Testers
Chilled Iron Rolls	Calenders	Ventilating Fans
Granite Press	Embossing	Rag Cutters
Rolls	Calenders	Stock Cutters
Glassine	Sheet Calenders	Paper Dampeners
Supercalenders	Platers	Bleach Ejectors

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JANUARY 3, 1931

SUMMARY

Cigarette paper	443 cs.
Wall paper	76 bls., 35 cs.
Paper hangings	12 bls., 5 cs.
News print	1574 rolls
Printing paper	106 bls., 74 cs.
Wrapping paper	43 cs.
Decalcomania paper	16 cs.
Colored paper	4 bls., 37 cs.
Filter paper	10 bls., 8 cs.
Drawing paper	3 cs.
Surface coated paper	4 cs.
Metal coated paper	292 cs.
Coated paper	8 cs.
Aluminum paper	2 cs.
Basic paper	1 roll
Parchment paper	3 cs.
Tissue paper	4 cs.
Blotting paper	2 cs.
Bowl paper	19 bls.
Writing paper	20 cs.
Letter paper	9 cs.
Miscellaneous paper	141 rolls, 23 bls., 295 cs.

CIGARETTE PAPER

Brown Williamson Tobacco Corp., Ansonia, Southampton, 7 cs.

De Manduit Paper Corp., Liberty, Havre, 436 cs.

WALL PAPER

F. J. Emerich, Cleveland, Hamburg, 23 bls., 1 cs.

Globe Shipping Co., Cleveland, Hamburg, 6 cs.

Universal Carloading Co., Cleveland, Bremen, 3 cs.

C. Grimmer & Son, Cleveland, Bremen, 2 bls.

A. D. Colquhoun, N. Amsterdam, Rotterdam, 11 cs.

W. H. S. Lloyd & Co., N Amsterdam, Rotterdam, 1 cs.

F. J. Emmerich, Deutschland, Hamburg, 14 bls.

Guaranty Trust Co., Deutschland, Hamburg, 23 cs.

D. C. Andrews & Co., Deutschland, Hamburg, 1 bl.

Globe Shipping Co., Deutschland, Hamburg, 30 bls.

F. A. Binder, Deutschland, Hamburg, 6 bls.

PAPER HANGINGS

W. H. S. Lloyd & Co., American Shipper, London, 2 cs., 9 bls.

Whiting & Patterson Co., Inc., Ansonia, Southampton, 3 cs., 2 bls.

Kensington Wallpaper Co., De Grasse, Havre, 1 bl.

NEWS PRINT

Perkins Goodwin & Co., Cleveland, Hamburg, 633 rolls.

M. Douglas & Co., Oscar II, Oslo, 44 rolls.

J. Madden, Sagoporack, Kotka, 480 rolls.

Perkins Goodwin & Co., Deutschland, Hamburg, 417 rolls.

PRINTING PAPER

P. C. Zuhlke, Burgerdyk, Rotterdam, 5 cs.

M. Douglas & Co., Cleveland, Hamburg, 151 rolls, 51 bls.

Japan Paper Co., Cleveland, Bremen, 8 cs.

C. Steiner, Cleveland, Bremen, 32 cs.

E. Dietzgen, N. Amsterdam, Rotterdam, 28 cs.

Perkins Goodwin & Co., Deutschland, Hamburg, 55 bls.

Japan Paper Co., Deutschland, Hamburg, 1 cs.

WRAPPING PAPER

C. Steiner, Cleveland, Hamburg, 8 cs.

E. Dietzgen, N. Amsterdam, Rotterdam, 35 cs.

DECALCOMANIA PAPER

C. W. Sellers, Cleveland, Bremen, 1 cs.

C. W. Sellers, Deutschland, Hamburg, 13 cs.

Phoenix Shipping Co., Deutschland, Hamburg, 2 cs.

COLORED PAPER

E. Henningson Co., Cleveland, Bremen, 4 bls.

S. Gilbert, Cleveland, Bremen, 4 cs.

E. Dietzgen, Deutschland, Hamburg, 33 cs.

FILTER PAPER

A. Giese & Son, Cleveland, Hamburg, 10 bls.

H. Reeve Angel & Co., Inc., Ansonia, Southampton, 8 cs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., Ansonia, Southampton, 3 cs.

SURFACE COATED PAPER

Schenckers, Inc., Cleveland, Hamburg, 2 cs.

Phoenix Shipping Co., Cleveland, Hamburg, 2 cs.

METAL COATED PAPER

Globe Shipping Co., Cleveland, Bremen, 67 cs.

K. Pauli Co., Cleveland, Bremen, 23 cs.

K. Pauli Co., Deutschland, Hamburg, 2 cs.

Globe Shipping Co., Deutschland, Hamburg, 105 cs.

H. Hawkins & Co., Deutschland, Hamburg, 95 cs.

COATED PAPER

Bank of America Nat'l Ass'n. Cleveland, Hamburg, 1 cs.

Bank of America Nat'l Ass'n, Deutschland, Hamburg, 7 cs.

ALUMINUM PUAPER

Keller Dorian Paper Co., Cleveland, Bremen, 2 cs.

BASIC PAPER

E. Dietzgen, N. Amsterdam, Rotterdam, 1 roll.

PARCHMENT PAPER

Phoenix Shipping Co., N. Amsterdam, Rotterdam, 3 cs.

TISSUE PAPER

B. F. Drakenfield & Co., Cedric, Liverpool, 3 cs.

Parsons & Whittemore, Inc., Cedric, Liverpool, 1 cs.

BLOTTING PAPER

J. & H. Berge, Vego, Bristol, 2 cs.

BOWL PAPER

Hurley Johnson Corp., Cedric, Liverpool, 19 bls.

WRITING PAPER

Globe Shipping Co., De Grasse, Havre, 2 cs.

Distinctive Writing Paper Co., De Grasse, Havre, 18 cs.

LETTER PAPER

Japan Paper Co., Saturnia, Trieste, 9 cs.

MISCELLANEOUS PAPER

Steiner Paper Corp., Burgerdyk, Rotterdam, 47 cs.

T. N. Fairbanks Co., Burgerdyk, Rotterdam, 6 cs.

Heemsoth Basse & Co., Burgerdyk, Rotterdam, 4 bls.

Kensington Wallpaper Co., Cleveland, Hamburg, 2 bls.

Marine Midland Trust Co., Cleveland, Hamburg, 9 bls.

D. F. Young, Cleveland, Bremen, 15 cs.

Waxelbaum & Co., Cleveland, Bremen, 6 cs.

E. Dietzgen, Oscar II, Copenhagen, 141 rolls.

Whitfield Paper Works, Tai Ping Yang, Kobe, 4 cs.

Cathay Commercial Co., Tai Ping Yang, Kobe, 2 cs.

H. Reeve Angel & Co., Inc., Tai Ping Yang, Yokohama, 5 cs.

Japan Paper Co., Tai Ping Yang, Yokohama, 51 cs.

Globe Shipping Co., N. Amsterdam, Rotterdam, 42 cs.

Keuffel & Esser Co., N. Amsterdam, Rotterdam, 5 cs.

Standard Products Corp., De Grasse, Havre, 49 cs.

A. C. Dodman Jr., Inc., De Grasse, Havre, 2 bls.

Keller Dorian Paper Co., De Grasse, Havre, 20 cs.

F. J. Emmerich, De Grasse, Havre, 7 cs.

Atlantic Forwarding Co., Deutschland, Hamburg, 18 cs.

American Express Co., Deutschland, Hamburg, 6 bls., 18 cs.

RAGS, BAGGING, ETC.

J. Cohen & Son, Burgerdyk, Rotterdam, 26 bls. rags.

R. F. Downing & Co., Burgerdyk, Rotterdam, 64 bls. bagging.

Irving Trust Co., Cleveland, Hamburg, 79 bls. nappers.

Irving Trust Co., Gravesteen, Antwerp, 89 bls. thread waste.

E. J. Keller Co., Inc., Gravenstein, ——, 57 bls. rags.

E. J. Keller Co., Inc., Liberty, ——, 145 bls. rags.

M. Snedeker Corp., Cedric, Liverpool, 36 bls. paper stock; 36 bls. thread waste.

OLD ROPE

Chemical Bank & Trust Co., Burgerdyk, Rotterdam, 50 coils.

Chemical Bank & Trust Co., Saturnia, Trieste, 52 coils.

A. Pollack & Co., Saturnia, Trieste, 57 coils.

A. Pollack & Co., Marengo, Newcastle, 240 coils.

William Steck & Co., N. Amsterdam, Rotterdam, 78 coils.

Irving Trust Co., Deutschland, Hamburg, 49 coils.

WOOD FLOUR

The Burnet Co., Burgerdyk, Rotterdam, 1000 bls.

State Chemical Co., Burgerdyk, Rotterdam, 300 bags.

Trust Co. of New Jersey, N. Amsterdam, Rotterdam, 200 bags.

WOOD PULP

Castle & Overton, Inc., Cleveland, Hamburg, 275 bl. wood pulp, 54 tons.

Atterbury Brothers, Inc., Oscar II, Oslo, 500 bls., mechanical pulp, 101 tons.

Simonson Bros., Inc., Sagaporack, Tokio, 540 bls. sulphite, 109 tons.

Lagerloaf Trading Co., Sagaporack, Rauma, 1671 bls. sulphate, 279 tons; 1365 bls. sulphite, 227 tons.

Lagerloaf Trading Co., Malaren, Viborg, 645 bls. sulphate.

Lagerloaf Trading Co., Malaren, Kotka, 10 bls. sulphate.

Lagerloaf Trading Co., Malaren, Tokio, 810 bls. sulphite.

Simonson Bros., Inc., Deutschland, Hamburg, 130 bls. wood pulp, 26 tons.

Stora Kopperberg Corp., Kolsnaren, Skutskar, 5500 bls. wood pulp.

Perkins Goodwin & Co., Kolsnaren, Sundsvall, 8875 bls. sulphate.

Scandanavian Pulp Agency, Inc., Kolsnaren, Sundsvall, 250 bls. sulphite.

Johansson Wales & Sparre, Inc., Kolsnaren, Sundsvall, 5125 bls., sulphite.

BALTIMORE IMPORTS

WEEK ENDING JANUARY 3, 1931

S. Shapiro & Sons, Liberty, Dunkirk, 163 bls. rags.

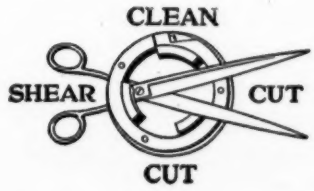
(Continued on page 06)

Cotton and Paper Rolls
Super Calenders
Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

Successors to the Granger Foundry & Machine Co.

The Textile-Finishing Machinery Company
PROVIDENCE, R. I.

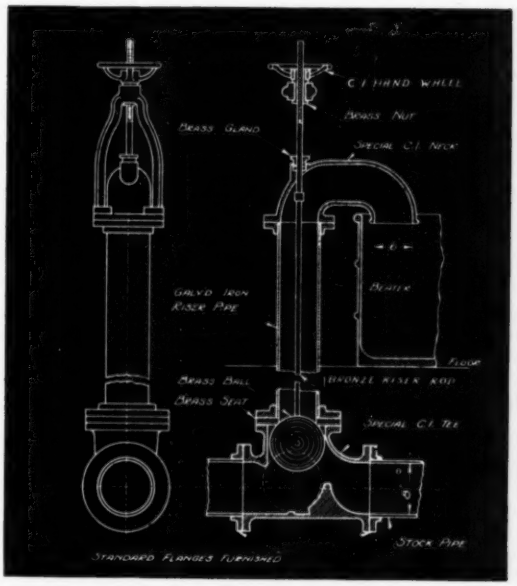
LANGSTON



For clean, square-edged, tightly wound rolls, Langston Slitters are unequalled. The famous Shear-Cut parts the paper sharply—*instead of crushing it.* Ask for catalog giving full details.

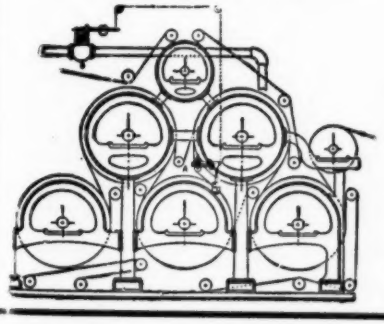
SAMUEL M. LANGSTON CO.
Camden, N. J.

SLITTERS



BALL VALVE HYDRANT
FOR STOCK CIRCULATING SYSTEM
MANUFACTURED BY
TICONDEROGA MACHINE WORKS
TICONDEROGA, N. Y.
SEND FOR BULLETIN NO. 2

The Pickles Drying Regulator



WE ARE SAFE IN OUR PROPOSITION
YOU'LL MAKE NO MISTAKE IN ACCEPTING IT

Pickles Drying Regulator

will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information.

W. F. PICKLES **Buckland, Conn.**

Imports of Paper and Paper Stock

(*Continued from page 58*)

PHILADELPHIA IMPORTS

WEEK ENDING JANUARY 3, 1931

J. A. Steer & Co., Vego, Bristol, 177 coils old rope.
J. W. Hampton Jr. & Co., Inc., Vego, Bristol, 131 tons clay.
Paper Makers Import Co., Vego, Bristol, 204 tons clay.
Baring Bros. & Co., Vego, Bristol, 164 bls. clay.
International Trust Co., Cabo Mayor, Gijon, 80 rolls old rope.
International Trust Co., Cabo Mayor, Pasajes, 300 rolls old rope.

BOSTON IMPORTS

WEEK ENDING JANUARY 3, 1931

Lagerloaf Trading Co., Sagoporack, Kotka, 36 bls. pulp boards, 5 tons.
Lagerloaf Trading Co., Sagoporack, Tokio, 810 bls. sulphite, 164 tons.
Lagerloaf Trading Co., Sagoporack, Rauma, 320 bls. sulphite, 52 tons; 2460 bls. sulphate, 414 tons.
Brown Bros. & Co., Marengo, Hull, 479 coils old rope.
Lagerloaf Trading Co., Malaren, Viborg, 865 bls. sulphite.
Lagerloaf Trading Co., Malaren, Kotka, 132 bls. sulphite.
Lagerloaf Trading Co., Malaren, Tokio, 810 bls. sulphite.
Perkins Goodwin & Co., Malaren, Gothenberg, 5080 bls. kraft pulp.
Kidder Peabody Accep. Corp., Malaren, Gothenberg, 91 bls. sulphate.
Price & Pierce Ltd., Malaren, Gothenberg, 600 bls. mechanical pulp.
Johansson Wales & Sparre, Inc., Malaren, Gothenberg, 250 bls. sulphate; 180 bls. kraft soda pulp.
Parsons & Whittemore, Inc., Malaren, Gothenberg, 240 bls. sulphite.
Elliot Addressing Machine Co., Tsuyama Maru, Yokohama, 8 cs. paper.

PORTLAND IMPORTS

WEEK ENDING JANUARY 3, 1931

Lagerloaf Trading Co., Sagoporack, Helsingfors, 135 bls. sulphate, 27 tons; 1693 bls. sulphite, 253 tons.
——, Sagoporack, Kotka, 892 bls. sulphite, 151 tons.
——, Sagoporack, Tokio, 2052 bls. sulphite, 416 tons.
Lagerloaf Trading Co., Sagoporack, Rauma, 1158 bls. sulphate, 193 tons; 2794 bls. mechanical pulp, 557 tons; 12543 bls. sulphite, 2137 tons.
Lagerloaf Trading Co., Malaren, Viborg, 8323 bls. sulphite; 1360 bls. sulphate.
Lagerloaf Trading Co., Malaren, Kotka, 2730 bls. sulphite; 300 bls. sulphate.
Lagerloaf Trading Co., Malaren, Tokio, 2592 bls. sulphite.

Wisconsin News of the Industry

Additions to privately owned lands in Wisconsin set aside for forestry will total 140,000 acres for 1931 if all applications are granted by the Wisconsin Conservation Commission. These lands will be listed under the state's forest crop law, which exempts them from the usual property taxes until the timber is cut. In the previous year 100,000 acres were set aside in this manner. Most of this land is in the northern wooded section of the state.

Capital stock of the Bergstrom Paper Company, Neenah, Wis., has been increased from $700,000 to $1,500,000, according to an amendment to the articles of incorporation filed with the secretary of state. The amendment is signed by John Bergstrom as president and Nathan Bergstrom as secretary. No changes in organization or personnel are announced.

In a settlement of the estate of the late George A. Whiting, paper manufacturer, of Neenah, Wis., his widow, Mrs. Mae B. Whiting, has accepted $161,500 as her share of the proceeds. A pre-nuptial agreement gave her $90,000, but she applied to the court for a third of the estate and received the above sum as a compromise. She also has the Whiting homestead rent-free for ten years.

Operations were suspended at the George A. Whiting Paper Company, Menasha, Wis., for about three days last week. A coupling broke on the main drive shaft, disabling the entire plant. A new shaft was quickly cast and installed.

Damage of approximately $300 was caused by a fire breaking out in the sulphur bins of the Dells Paper and Pulp Company, Eau Claire, Wis. Part of the roof had to be razed before the fire could be extinguished.

Brown-Bridge Mills Issue Sample Book

The Brown-Bridge Mills, Inc., Troy, Ohio, are sending out one of the most attractive gummed paper sample books ever issued.

This is a loose leaf catalog, size 6 by 9 inches, with embossed fabrikoid cover in four colors, and contains samples of their complete line of gummed stock together with two additional tear sheets of every number. This method of binding the book makes it very convenient always to have the original sample—with full details printed on it, yet have several extra sheets for various uses to which it may be necessary to put them. It is a loose leaf binder and additional tear sheets can always be inserted.

They state that they will be glad to send one of these catalogs together with their distributor propositions to anyone interested enough to write them for it.

Imperial Paper Employees Celebrate

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., January 3, 1931.—Several hundred office and factory employees of the Imperial Paper and Color Corporation participated during the week in a good fellowship party at the Queensbury Hotel in this city. The affair was presided over by Karl R. McBride, vice president and general manager, who also acted in the role of toastmaster. An exchange of holiday gifts proved of an amusing nature to the employed and dancing and card playing were also enjoyed. The committee in charge consisted of W. B. Nelson, K. E. Mack, M. W. Denn, R. J. Williams, E. O'Donnell and M. W. Hill.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 7, 1931—The Government Printing Office has received the following bids for 40,000 pounds of No. 2 quality binders board; R. P. Andrews Paper Company at 3.45 cents per pound; Barton, Duer & Koch Paper Company, 3.45 cents; Dobler & Mudge, 3.45 cents; and Mathers-Lamm Paper Company, 3.75 cents.

Following bids were also received for 10,000 pounds, 23¼" rolls, brown calendered tag board; Barton, Duer & Koch Paper Company at 7.84 cents per pound.

For 2,250 pounds of 17 x 18 yellow safety writing paper; Bishop Paper Company, at 16 cents per pound; George LaMonte & Son, 13 cents; and Perfect Safety Paper Company, 12.25 cents.

Crown Paper Box Co. Incorporated

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., January 5, 1931—Articles of incorporation have been filed with the secretary of state here by the Crown Paper Box Company, Inc., having a principal place of business in this city. The corporation is formed to manufacture all kinds of boxes, barrels, baskets, etc. It has an initial capital stock of 3,500 shares having a declared par value of $10 each and the first board of directors is composed of Franklin H. Thompson, Leo T. Dwyer, John J. Wanner, Hazel Wanner and Jesse L. Haynes.

New York Mills Allowed Tax Refunds

[FROM OUR REGULAR CORRESPONDENT]

BROWNVILLE, N. Y., January 3, 1931.—The Harmon Paper Company was awarded the largest federal tax refund among the list of industrial concerns in this section which have been allowed rebates. The company will receive $14,261. The Hall Corporation, under the control of the Algonquin Paper Company, Ogdensburg, has been allotted $1,807 and the Aldrich Paper Company, Natural Dam, $2,544. A refund of $6,212.96 has been awarded to the St. Regis Paper Company.

THE DRAPER FELTS

All kinds and styles of Felts for all kinds and styles of Papers.

Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

DRAPER BROS. COMPANY

CANTON, MASS.

Woolen manufacturers since 1856

FAIRBANKS

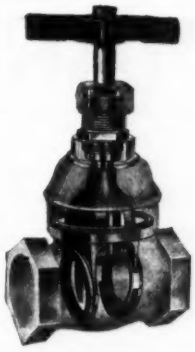


Fig. 0201

Renewable Seat Ring Gate Valves

are built to give service under the most severe conditions.

The renewable features have been perfected, are simple and may be relied upon as being entirely effective.

Renewals can be easily and quickly made, when necessary, without taking the valve from the pipe line.

Screw End and Flange End types.
Made in Bronze or of metals to meet special conditions.
Good for 150 lb. Steam Working Pressure

Write for Descriptive Bulletin and No. 20 Valve Catalog.

THE FAIRBANKS COMPANY

BOSTON NEW YORK PITTSBURGH

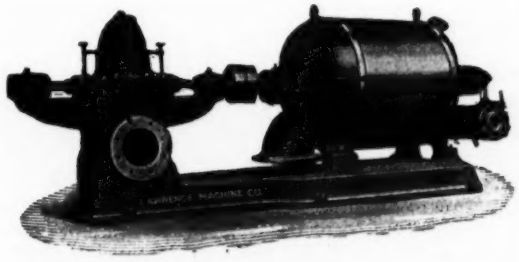
Distribution in All Principal Cities.

Horizontally Split Casing Double Suction Pumps

LAWRENCE PUMPS

The name protects and guarantees you satisfaction.

We are the original designers and builders of the LAWRENCE PUMP.



Lawrence pumps for all conditions and services. Forty-four years of practical experience with centrifugal pump development places us among the leaders. Our efforts have been rewarded by the acceptance of our product in general.

Thousands of installations and the successful performance of our pumps should be sufficient proof of our ability to handle your pumping problems. Our engineering force is at your command.

Have only Lawrence Pumps, manufactured by the

Lawrence Machine & Pump Company

361 Market St. Lawrence, Mass.

FARREL-BIRMINGHAM COMPANY INC.

50 STATE ST., ANSONIA, CONN.

PAPER MILL MACHINERY:

Paper and Board Calenders

Chilled Iron Rolls for Various Purposes

Roll Grinders, Roll Calipers

Coating, Saturating, Silicating, Paraffining, and Waxing Machines

Hydraulic Pulp Dehydrating Presses, Calender Roll Recovering Presses

See MECHANICAL CATALOGUE A. S. M. E.

Roll Grinding Machines: Two-Wheel Roll Grinding Machines with swing rest and cam type crowning device always produce an absolutely accurate and correct shape; noted for efficiency and low-grinding costs. List of installations on request, with sizes and specifications.

NEW RECORDS FOR PRODUCTION AND PRECISION ARE MADE ON FARREL-BIRMINGHAM MACHINES

New York Market Review

Office of the PAPER TRADE JOURNAL
Wednesday, January 7, 1931

Conditions in the local paper market are fairly satisfactory. While trading has been light following the holiday rush, stocks in the hands of the distributors are not believed to be excessive, and the industry is in a good position for expansion. Sales forces of the leading paper organizations are hopeful of the future. The price situation is irregular.

Trading in the news print market was moderately active. Most of the manufacturers are going into the new year in approximately the same shape as in 1930. Production during the past two weeks has proceeded along seasonal lines. While advertising in the leading newspapers has declined, hopes are expressed that there will be a recovery before long.

Box board output was greatly curtailed during the holiday weeks, as usual at this time of the year. Prices are holding up to formerly quoted levels, in most instances. Demand for the various grades of fine paper is normal. Coated papers are reported to be coming back strongly. Coarse papers have been in excellent request with prices more stable than of late.

Mechanical Pulp

The position of the ground wood market is practically unchanged. Offerings of both domestic and imported mechanical pulp are rather limited at present, due mainly to the recent drought and to curtailed operations abroad. There are a fair number of inquiries around for future delivery. Prices are steady to firm and shading is infrequent.

Chemical Pulp

Seasonal conditions prevail in the local chemical pulp market. Demand for some grades of imported and domestic chemical pulp is showing signs of slight improvement, although other grades are very quiet. Inquiries for future requirements are being received in fair volume. Prices are generally holding to formerly quoted levels.

Old Rope and Bagging

Most of the business transacted in the old rope market was along routine lines. Demand for both domestic and imported old manila rope is only moderately active. Mixed rope is rather dull. The bagging market is little changed. Gunny bagging is fairly steady. Scrap bagging is seasonally quiet. Prices are holding to schedule, in most instances.

Rags

Paper mill demand for domestic rags is rather lifeless at present although trading should become more lively after the close of the inventory period. Cotton cuttings are moving in moderate volume. There is slight improvement in the request for roofing grades with offerings somewhat limited. The mixed rag market is dull. No change has been reported in the imported rag market.

Waste Paper

The better grades of paper stock continue fairly steady, especially soft white shavings, which continue in good demand. Other grades are moderately active. The board mills are not evincing much interest in the lower grades. Members of the New York Waste Material Merchants Association have decided to burn a large part of their January mixed waste paper collections.

Twine

Demand for the various grades of twine is fairly persistent, considering the prevailing business depression. Although most of the orders booked recently have consisted of small orders for immediate requirements, greater activity is hoped for in the near future. Prices rule fairly steady although competition for desirable orders is keen.

Paper & Pulp Association In New Quarters

The American Paper and Pulp Association is now installed in its new headquarters at 370 Lexington Avenue, New York, where the association occupies about half of the space on the eighth floor. This new building is ideally situated on the corner of East 41st street and Lexington Avenue, near the Grand Central Terminal, with the subways, elevated and surface lines as additional transportation facilities. All the offices possess the maximum amount of light while the ventilating and cleaning systems are the most modern ever devised.

Private offices are provided for Jesse H. Neal, general manager; Charles W. Boyce, secretary; Thomas J. Burke, director of the cost department; John A. C. Kavanagh, director of the statistical department; D. A. Crocker, secretary of the Salesmen's Association of the Paper Industry, and the Gummed Industries Association; W. N. Wilkinson, president of the Supply and Equipment Association; and Ronald G. Macdonald, secretary of the Technical Association of the Paper Industry.

It is the intention to install shortly a permanent exhibit for the purpose of displaying new products developed by members of the American Pulp and Paper Association and a suitable room has been provided for that purpose.

The officers of the American Pulp and Paper Association are assured of the best wishes of everyone connected with the industry for its continued success and usefulnes in its new and more convenient surroundings.

To Continue Binders Board Simplification

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 31, 1930—Alexander B. Galt, of the Bureau of Standards is notifying manufacturers, distributors and users of binders board that the simplification program of the industry has been reaffirmed for another period of one year without charge.

The notification states that "a survey conducted prior to the revision meeting, indicated the degree of adherence to the recommendation to be approximately 51 per cent."

Estate of Late William D. Judd

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., January 6, 1931.—William D. Judd, president of the Hampshire Paper Company and Carew Manufacturing Company, left an estate of $93,375 according to inventory filed in the Hampden County Probate Court. This included 58 shares of the Carew company, valued at $46,400, and 180 shares of the Hampshire Paper Company, valued at $18,000.

QUALITY PULPS

"HAFSLUND BEAR"
Bleached Sulphite

"FORSHAGA"
Bleached Sulphite

"HURUM SPECIAL"
Extra Strong Kraft

"BAMBLE"
Extra Strong Kraft

Fresh Monthly Shipments—No Closed Winter Season

The Borregaard Company
Incorporated
200 FIFTH AVENUE NEW YORK, N. Y.

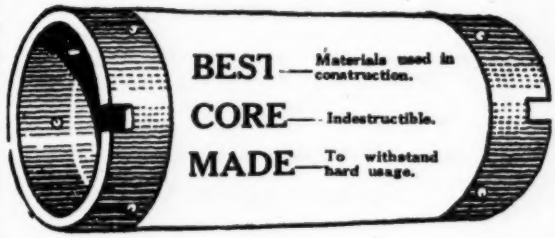
SHIPPING INSURANCE

The Use of

ELIXMAN CORES

protects your rolls and insures their delivery to your customer in perfect condition. They eliminate claims for damages.

SHIPPING INSURANCE



Your two sources of supply are

Canadian Elixman Company
HAMILTON, ONTARIO

Elixman Paper Core Company
CORINTH, N. Y.

WOOD PULP
AGENTS

PRICE & PIERCE, Ltd.,

17 EAST 42ND ST.
NEW YORK

West Virginia Pulp and Paper Company

Manufacturers of

SUPERCALENDERED
and
MACHINE FINISHED BOOK
and LITHOGRAPHIC
PAPERS

Offset, Envelope, Bond, Writing, Cover and Music Paper, High Grade Coated Book, Index Bristol, Post Card, Kraft and Label Papers.

also

Bleached Spruce Sulphite and Soda, Kraft Pulp

280 Park Ave. New York
35 East Wacker Drive Chicago
503 Market St., San Francisco, Cal.
Sixth and Chestnut Sts., Philadelphia, Pa.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL
Wednesday, January 7, 1931

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Contract shipments are moving in fair volume. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton, while the powder is selling at from 3¾ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—Steadiness prevails in the bleaching powder market. The contract movement is about normal for the season. Prices are generally being maintained at formerly quoted levels. Bleaching powder is selling at from $2.00 to $2.35 per hundred pounds, in drums, at works.

CASEIN.—Trading in the casein market was only moderately active. Prices remain unchanged. Domestic standard ground is quoted at 9½ cents and finely ground at 12 cents per pound. Argentine standard ground is selling at 11 cents and finely ground at 12 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—The caustic soda market was rather quiet, but more lively trading is looked for in the near future. Solid caustic soda is quoted at from $2.90 to $2.95, while the flake and the ground are selling at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—Demand for both imported and domestic china clay is fairly persistent. The contract movement is normal for the time of year. Imported china clay is still quoted at from $15 to $25 per ton, ship side; while domestic paper making clay is selling at from $8 to $13 per ton, at mine.

CHLORINE.—Conditions in the chlorine market are unsatisfactory. While demand has expanded materially, competition for desirable orders is keen and prices are easy. Chlorine is still being offered at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market fluctuated during the past week. Prices declined slightly. The grades of gum rosin used in the paper mills are now quoted at from $5.25 to $5.50 per 280 pounds, in barrels, at yards; while wood rosin is selling at $3.80 per 280 pounds, in car lot loads, at southern shipping points.

SALT CAKE.—Offerings of salt cake are sufficient to take care of current requirements. The contract movement is well up to average. Salt cake is still quoted at from $16 to $17; German salt cake at from $15.50 to $16; and chrome salt cake at from $15 to $16 per ton, in bulk, at works.

SODA ASH.—The soda ash market is in a fairly satisfactory position. Supplies are moving into consumption at a steady pace. Prices are generally holding to schedule. Contract quotations on soda ash, in car lots, at works, are as follows: in bulk, $1.15; in bags, $1.32; and in barrels, $1.55 per 100 pounds.

STARCH.—Paper mill demand for starch has been light of late, due mainly to the holiday lull and the inventory period. Supplies are moving into consumption in fair volume. Special paper making starch is now quoted at $3.27 per 100 pounds, in bags; and at $3.54, in barrels, at works.

SULPHATE OF ALUMINA.—Most of the business transacted in the sulphate of alumina market was along routine lines. Contract orders are being booked at lower prices than last year. Commercial grades are quoted at from $1.25 to $1.40, and iron free at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market is exhibiting a strong undertone. Sulphur is still quoted at $18 per long ton, at mine, on orders of 1,000 tons, or over, on yearly contracts, and at $20 per ton for any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Business in the talc market was seasonal. Demand was rather light. The contract movement is normal. Prices are generally holding to schedule. Domestic talc is quoted at from $16 to $18 per ton, in bulk; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper
(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	6.75	@53.25
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine sized	6.75	@11.00
Book, Cased—		
S. & S. C.	5.75	@ —
M. F.	5.50	@ —
Coated and Enamel	7.00	@10.50
Lithograph	7.50	@12.00
Tissues—Per Ream—		
White No. 1	.65	@ .67½
Anti-Tarnish M G only	.65	@ .70
Colored	.70	@ .90
White No. 2	.55	@ .57½
Kraft	.65	@ .70
Manila	.55	@ .57½
Kraft—		
No. 1 Domestic	5.00	@ 6.00
No. 2 Domestic	3.00	@ 3.75
Southern	3.00	@ 3.75
Imported	6.00	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.00	@ 5.25
No. 2 Wood	3.50	@ 4.00
Butchers	3.37½	@ —
Fibre Papers—		
No. 1 Fibre	4.25	@ 5.50
No. 2 Fibre	4.00	@ 4.75
Common Bogus	1.50	@ 3.00
Screenings	2.00	@ 3.00
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs., No. 1	.09¾	@ —
No. 2	.11¾	@ —
Bleached, basis 20 lbs.	.11¾	@ —
(Delivered New York)		
News, per ton—		
Rolls, contract	62.00	@ —
Rolls, spot	62.00	@ —
Sheets	67.00	@ —
Side Runs	47.00	@52.00
Boards—per ton—		
News	32.50	@35.00
Straw	40.00	@45.00
Chip	30.00	@32.00
Binders' Boards	65.00	@70.00
Standard Test Jute Liner	40.00	@42.00
Sgl. Mla. Lt. Chip (F. o. b. Mill)	42.50	@ —
Wood Pulp Boards	70.00	@80.00

Mechanical Pulp
(On Dock)

No. 1 Imported—		
Moist	28.00	@32.00
Dry	30.00	@34.00
(F. o. b. Mill)		
No. 1 Domestic	28.00	@34.00

Chemical Pulp
(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.00	@ 4.25
Easy Bleaching	2.60	@ 2.80
No. 1 strong unbleached	2.00	@ 2.65
Mitscherlich unbleached	2.15	@ 2.70
No. 2 strong unbleached	1.95	@ 2.05
No. 1 Kraft	1.50	@ 1.75
No. 2 Kraft	1.40	@ 1.55
Sulphate—		
Bleached	3.40	@ 3.85
(F. o. b. Pulp Mill)		
Sulphite (Domestic)—		
Bleached	2.65	@ 4.75
Easy Bleaching Sulphite	2.55	@ 2.75
News Sulphite	2.35	@ 2.60
Mitscherlich	2.50	@ 3.25
Kraft (Domestic)	2.10	@ 2.75
Soda Bleached	2.75	@ 2.90

Domestic Rags
New Rags
(Prices to Mill f. o. b N. Y.)

Shirt Cuttings—		
New White, No. 1	8.00	@ 8.50
New White, No. 2	7.00	@ 7.25
Silesias No. 1	6.50	@ 7.00
New Unbleached	8.25	@ 9.00
New Blue Prints	5.25	@ 5.50
New Soft Blacks	4.00	@ 4.50
Blue Overall	6.25	@ 6.50
Washables	4.25	@ 4.75
Fancy	4.75	@ 5.25
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	7.50	@ 8.00
O. D. Khaki Cuttings	5.15	@ 5.75
Men's Corduroy	3.50	@ 4.00
New Mixed Blacks	3.25	@ 3.50
Old Rags		
White, No. 1—		
Repacked	5.25	@ 5.75
Miscellaneous	4.25	@ 4.75
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.30	@ 2.50
St. Soiled, White	1.50	@ 1.75
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.65	@ 1.85
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.25	@ 1.30
No. 1	1.25	@ 1.30
No. 2	.90	@ 1.00
No. 3	.70	@ .80
No. 4	.65	@ .70
No. 5A	.50	@ .60

Foreign Rags
New Rags

New Dark Cuttings	2.30	@ 2.50
New Mixed Cuttings	2.25	@ 2.75
New Light Silesias	6.25	@ 6.50
Light Flannelettes	6.50	@ 7.00
Unbleached Cuttings	8.25	@ 8.75
New White Cuttings	7.50	@ 8.00
New Light Oxfords	6.00	@ 6.50
New Light Prints	4.75	@ 5.25
Old Rags		
No. 1 White Linens	7.50	@ 8.00
No. 2 White Linens	5.75	@ 6.75
No. 3 White Linens	4.75	@ 5.25
No. 4 White Linens	3.00	@ 3.50
No. 1 White Cotton	5.50	@ 5.75
No. 2 White Cotton	4.50	@ 5.00
No. 3 White Cotton	3.00	@ 4.00
No. 4 White Cotton	1.70	@ 1.80
Extra Light Prints	2.75	@ 3.00
Ord. Light Prints	2.15	@ 2.40
Med. Light Prints	1.65	@ 1.75
Dutch Blue Cottons	2.00	@ 2.10
French Blue Linens	2.65	@ 2.75
German Blue Linens	2.25	@ 2.40
German Blue Cottons	1.85	@ 1.90
Checks and Blues	1.85	@ 1.90
Lindsay Garments	1.20	@ 1.30
Dark Cottons	1.00	@ 1.10
Old Shopperies	.95	@ 1.00
New Shopperies	.95	@ 1.05
French Blues	1.90	@ 2.00

Old Rope and Bagging
(Prices to Mill f. o. b. N. Y.)

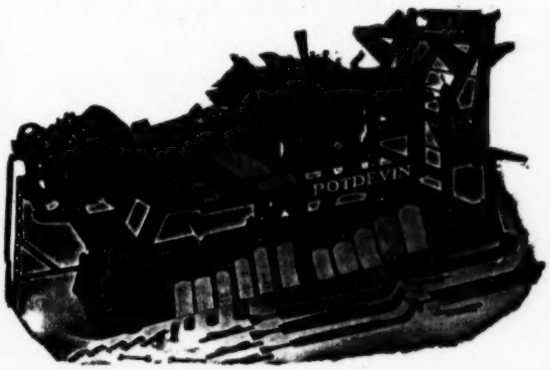
Gunny No. 1—		
Foreign	1.65	@ 1.80
Domestic	1.65	@ 1.80
Wool Tares, light	1.30	@ 1.40
Wool Tares, heavy	1.35	@ 1.40
Bright Bagging	1.30	@ 1.35
Small Mixed Rope	.90	@ 1.00
Manila Rope—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00
New Burlap Cut	2.25	@ 2.50
Hessian Jute Threads—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00

Old Waste Papers
(F. o. b. New York)

Shavings—		
Hard, white, No. 1	2.80	@ 2.90
Hard White, No. 2	2.30	@ 2.40
Soft, white, No. 1	2.50	@ 2.60
White envelope cuttings	2.95	@ 3.05
Flat Stock—		
Stitchless	.95	@ 1.05
Overissue Mag.	.95	@ 1.05
Solid Flat Book	.80	@ .95
Crumpled No. 1	.65	@ .70
Solid Book Ledger	1.90	@ 2.00
Ledger Stock	.80	@ .90
New B. B. Chips	.25	@ .30
Manilas—		
New Env. Cut.	2.10	@ 2.25
New Cuttings	1.50	1.65
Extra No. 1 old	1.25	@ 1.35
Print	.50	@ .60
Bogus Wrapper	.50	@ .60
Container	.30	@ .35
Old Kraft Machine—		
Compressed bales	1.30	@ 1.40
News—		
No. 1 White News	1.70	@ 1.80
Strictly Overissue	.45	@ .50
Strictly Folded	.35	@ .40
No. 1 Mixed Paper	.20	@ .25
Common Paper	Nominal	

NEW **POTDEVIN** PRINTING

SPECIALTY BAG MACHINERY



(Model 290) 2-Color Printing Flat and Square
40 Other Models

PAPER BAG MACHINERY

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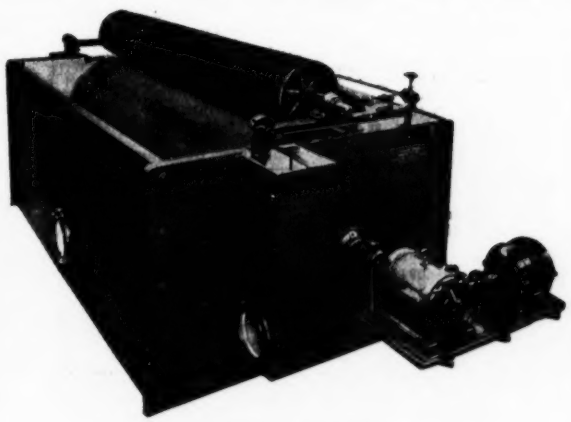
1223 38th Street, Dept. 4, Brooklyn, N. Y., U. S. A.
Phones: Windsor 1700-1701-1702

The Glens Falls Decker



MODERN DESIGN
SUBSTANTIAL CONSTRUCTION
PERFECT CONTROL

BUILT IN SIZES 36" x 72" to 48" x 132"

GLENS FALLS MACHINE WORKS
GLENS FALLS, N. Y.

EDGAR CLAYS

AMERICAN MADE FOR
THE AMERICAN TRADE

H. T. BRAND
COATING CLAY
and
High Grade Filler Clay

Edgar Clays are the result of almost half a century of experience in Washing Clay. Technical Service available for both coating and loading without charge.

EDGAR BROS. CO.
50 Church St. New York

500 Tons Daily

We will be glad to send you samples—

Twines
(F. o. b. Mill)

Cotton—			
No. 1	.22	@	.24
No. 2	.21	@	.22
No. 3	.19	@	.20
B. C., 18 basis	.32	@	.34
A. Italian, 18 basis	.38	@	.39
Finished Jute—			
Dark 18 basis	.20½	@	.21
Light 18 basis	.22½	@	—
Jute Wrappings, 3-6 Ply—			
No. 1	.14¾	@	—
No. 2	.13¾	@	—
Tube Rope—			
4-ply and larger	.10¼	@	—
Fine Tube Rope—			
4-ply	.12¾	@	—
3-ply	.13¾	@	—
2-ply	.14¾	@	—
Paper Makers Twine Balls	.08¾	@	—
Box Twine, 2-3 ply	.09	@	.10
Jute Rope	.11	@	.12
Amer. Hemp, 6	.29	@	.31
Java Sisal			
No. 1 Basis	.12	@	—
No. 2 Basis	.11¾	@	—
New Zealand Sisal	.11½	@	—
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Twine	.22½	@	.24½

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	5.00	@	5.50
Southern Kraft	3.75	@	4.00
No. 2 Kraft	3.75	@	4.00
Wood Tag Boards	.04¼	@	.06½
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.07	@	.07¼
White Tissue	.07¼	@	.07½

(Delivered Central Territory)

News, per ton—			
Rolls, contract	62.00	@	—
Sheets	67.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.35	@	2.40
White Env. Cut-			
No. 1 Soft Shavings	2.10	@	2.15
No. 1 Mixed	.30	@	.35
No. 2 Mixed	.25	@	.35
Ledger & Writings	.90	@	.95
Solid Books	.90	@	.95
Blanks	1.60	@	1.65
Krafts	1.30	@	1.40
New Kraft Cuts	1.50	@	1.70
Manila Env. Cuts	1.65	@	1.70
Ex. No. 1 Manila	1.30	@	1.45
Print Manila	.45	@	.50
Overissue News	.40	@	.45
Old Newspapers—			
No. 1	.35	@	.40
No. 2	.30	@	.35
Mixed Papers—			
No. 1	.30	@	.35
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.05	@	.40
Ledgers	.08	@	.40
Writings—			
Superfine	.12½	@	.18
Extra fine	.18	@	.22
Fine	.17	@	.26
Fine, No. 2	.15	@	.25
Fine, No. 3	.09	@	.20
Book, M. F.	.05	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.09	@	.16
Coated Lithograph	.07	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.07	@	.09
Manila Sul., No. 1	.03½	@	.05½
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04
Southern Kraft No. 1	—	@	.03¾
Southern Kraft No. 2	—	@	.03½
Common Bogus	.03	@	.04

(Delivered Philadelphia)

News Print Rolls	62.00	@	—
Straw Board	52.50	@	70.00
News Board	32.50	@	35.00
Chip Board	30.00	@	32.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	75.00		
No. 2, per ton	70.00		
Carload lots	68.00	@	70.00
Tarred Felts—			
Regular	55.50	@	57.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.09	@	.09½
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07	@	.09
Black Silesia, soft	.05	@	.05½
New Unbleached	.08½	@	.09
Washable, No. 1	.04½	@	.05
Blue Overall	.07½	@	.08
Cottons—According to grades—			
Washable, No. 2	.03	@	—
New Blue	.03	@	.03½
Fancy	.05	@	.05½
New Black Soft	.05	@	.05¾
New Light Seconds	.02½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08½	@	.09
New Black Mixed	.03¾	@	.04½

Domestic Rags (Old)

White No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
M. G.	6.00	@	—
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roofing Stock—			
Foreign No. 1	1.25	@	1.30
Repacked	.80	@	.90

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.65	@	2.75
No. 2 Hard White	2.30	@	2.50
No. 1 Soft White	2.25	@	2.50
No. 2 Soft White	1.40	@	1.60
No. 1 Mixed	.90	@	1.00
No. 2 Mixed	.60	@	.70
Solid Ledger Stock	1.55	@	1.65
Writing Paper	1.05	@	1.25
No. 1 Books, heavy	1.00	@	1.15
No. 2 Books, light	.90	@	.95
No. 1 New Manila	2.15	@	2.30
No. 1 Old Manila	1.50	@	1.60
Print Manila	.50	@	.60
Container Manila	.45	@	.50
Old Kraft	1.35	@	1.40
Common Paper	.25	@	.35
No. 1 Mixed Paper	.25	@	.30
Straw Board, Chip	.35	@	.40
Binders Board, Chip	.35	@	.45
Corrugated Board	.50	@	.60
Overissue News	.45	@	.50
Old Newspaper	.25	@	.30

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.12½
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¾	@	.06
No. 2 Kraft	.03¼	@	.05

(Less car-freight to Boston)

Southern Kraft	.03¾	@	.04¼

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	@	.02¾
Delivered New England points			
News Print Rolls	61.50	@	—
Straw Boards, rolls	.009		52.50
Straw Board in Sheets, basis 35s to 70s	—	@	50.00
Filled News Board	32.50	@	—
Chip Board	30.00	@	—
Chip Board (Creasing)	32.50	@	—
Single Manila Lined Chip	45.00	@	—
Single White, Patent Coated News Board Bender, No. 1	60.00	@	75.00
Single White, Patent Coated News Board Bender No. 2	55.00	@	65.00
Wood Pulp Board	75.00	@	80.00
Binder Boards	67.50	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	—	@	2.40
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	—	@	1.75
No. 1 Books, Heavy	.75	@	.80
No. 1 Books, Light	—	@	.65
Crumpled Stitchless Book Stock	—	@	.70
Manila Env. Cuttings	1.85	@	2.00
No. 1 Old Manila	—	@	1.00
White Blank News	1.50	@	1.60
Kraft No. 1	—	@	1.20
Manila	—	@	.90
No. 1 Mixed Paper	—	@	.15
Overissue News	—	@	.45
Old Newspapers	.25	@	.30
Box Board, Chip	.16	@	.20
Corrugated Boxes	.35	@	.40

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.85
Domestic	—	@	1.60
Manila Rope—			
Foreign	—	@	2.50
Domestic	—	@	3.00
Transmission Rope	—	@	1.75
Mixed Strings	—	@	.65
Jute Rope	—	@	1.05
Jute Carpet Threads	1.00	@	1.10
No. 4 Scrap Burlap	—	@	1.35
Scrap Sisal	—	@	1.50
Scrap Sisal for shredding	—	@	1.75
Wool Tares, heavy	—	@	1.40
New Burlap Cutting	1.75	@	2.00
Australian Pouches	—	@	2.50
Heavy Baling Bagging	2.00	@	2.10
No. 1 Burlap	—	@	3.50

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.07½	@	.08
New White No. 2	—	@	.06
Silesias No. 1	.06	@	.06½
New Unbleached	—	@	.09¼
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06¼	@	.06¾
New Black, soft	.04	@	.04¼
Khaki Cuttings	.04	@	.04½
O. D. Khaki	.04½	@	.05
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.75	@	3.00
Thirds and Blues—			
Repacked	2.25	@	2.50
Miscellaneous	1.75	@	1.90
Black Stockings	3.65	@	4.00
Roofing Stock—			
No. 1	.90	@	.95
No. 2	—	@	.75
No. 3	—	@	.65
No. 4	—	@	.60

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.60	@	.75
New No. 1 white shirt cuttings	7.50	@	8.00
Dutch Blues	—	@	1.80
Lace Curtains	4.00	@	4.25
New Checks & Blues	4.25	@	4.60
Old Fustians	1.65	@	1.65
Old Linsey Garments	.75	@	.85

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12¾	@	—
No. 2 Sulphite	.09¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.09½	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	4.00	@	5.75
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 4 S. C. (carloads)	6.25	@	—
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.50	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.00	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
Kraft No. 2	5.40	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	61.50	@	62.00
Sheets	67.00	@	—

Pulp
(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	50.00	@	—
Sulphite, news grade	70.00	@	—
Sulphite, bleached	72.50	@	75.00
Sulphate	60.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.80	@	—
Soft White	2.60	@	—
White Blk. News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.10	@	—
Light and Crumpled Book Stock	1.20	@	—
Ledgers and Writ-			
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	.80	@	—
Kraft	1.90	@	—
News and Scrap—			
Strictly Overissue	.70	@	—
Strictly Folded	.70	@	—
No. 1 Mixed Paper	.60	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼

PACK the fluid end of the pump with a packing that retains its lubricant against the washing-out tendency of the fluid pumped.

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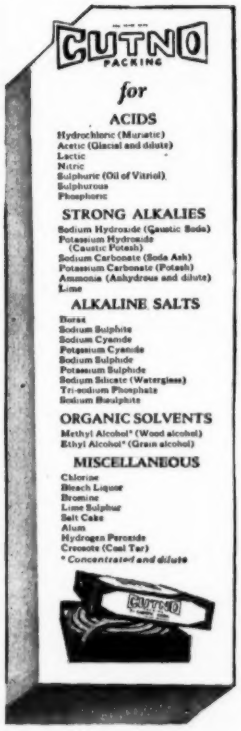

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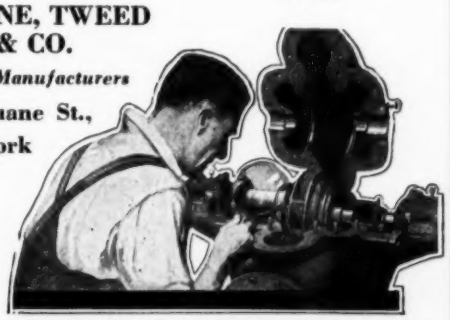

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